COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

C. E. LESHER, Editor

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Stop Before Reversing

THERE are those who would thus easily remedy the situation in the bituminous coal industry of too many mines and too many miners—poof! Close up the high-cost and the small mines; concentrate men, capital and transportation on the efficient large operations. How easy that is—to say.

In its recent decision on the Kohler mine-cave law of Pennsylvania, the United States Supreme Court says: "What makes the right to mine coal valuable is that it can be exercised at a profit. To make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it." The Court goes on to say that the general rule at least is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.

An overplus of bituminous-coal mines we certainly have for present and immediately future requirements. The periodically speculative profits attracted capital and the high-unit wage rates was the magnet for the labor. Now with the mines and the men started, and in some instances fixed, in this industry and occupation, what means is there for engineering the removal of the overplus, save by a reversal of the process that brought them in? It is quite certain they cannot be legislated out of business and out of jobs.

The tendency even now is to grow and expand. Even today there is an undercurrent of protest that the Coal Commission should have given the soft-coal industry a black eye recently by calling the attention of investors to its condition of overdevelopment.

The Market Turns

TWO ELEMENTS threatened the tranquility of the bituminous-coal market when, at the beginning of September, the mines resumed operation. One was the shortage of stocks of coal in the hands of railroads and industrials, the other the necessity of replacing the millions of tons of domestic fuel lost by the anthracite strike. By careful planning, by nationwide organization of big business and appeals to buyers of coal in quantity to hold off purchases for storage, the first of these as a danger to the market was minimized. The price of steam coal dropped week by week and the small buyer waited for the bottom.

The other factor has come into play within the last three weeks. Cold weather—a real touch of winter—developed a shortage in the householder's cellar, both East and West. Prices have taken a sharp turn upward, buyers are becoming urgent. Along the Atlantic seaboard the necessity for substitute fuel is calling in from Pittsburgh and other distant points block, splint and lump, unobtainable from soft-coal fields nearer by. Incidentally this is adding to the railroad haul, tying up open-top cars and slowing down the usual turnaround.

Production of soft coal began to decline early in the second week of December. Day by day it has been falling away. The cause has not been decrease in demand, for prices are headed the other way. The cause is primarily failure of motive power on the railroads. Engines in poor condition have been no match for zero weather and fatalities on the line are reported as high. Real winter is not starting out well for him who is short of fuel.

Is There a Will to Negotiate?

BETTER business in 1923 is the prospect as the new year dawns. True it is that there is no prospect of a repetition of the boom times of 1920, but undeniably industry is gaining ground as the months roll along—the country is on an upward swing. Progress is slow, as healthy growth should be, and is being helped by a marked feeling of confidence throughout the business structure. The building revival of 1922 promises to continue with the new year; the road building programs, halted in part by the railroad strike, will be taken up again next spring. Unemployment is no longer a national menace; the coal shortage that threatened at the end of the summer has been forestalled and the situation is well in hand; the railroads are getting back on their feet; the country is coming to its senses and will help in some manner to solve the multitudinous problems of Europe. Whatever be the length of the upward swing, no matter if it be followed by another slump, the present fact is that the country is looking up. Business is mending.

One cloud hangs over the country. It is the possibility of another strike of coal miners next April. The disruption to business caused by the five months' shutdown of last summer was serious. Some curtailment of industry resulted, a railroad strike was precipitated, the wheels of industry were thrown out of gear and are but now getting back to smooth running. The country is soured on such strikes. It has caused a coal commission to diagnose the workings of the industry that has these sinking spells. The steel man, the railroad manager, the banker, the farmer, all are earnest in their desire that there be no repetition of last summer's fracas.

What are the coal operators and the union miners thinking about it? What are they going to do? That is the real question, for at this stage the public and the U. S. Coal Commission can do nothing about it. The matter is entirely out of their hands. The public, if it has any concrete idea about the threatened strike of next April, turns to the Hammond commission, knowing that these men have been brought together because of a cry from the country for an investigation of the coal industry. The commission has no powers and no injunction from its creator, Congress, to intervene in such a contingency. This is not a wage-negotiating body, set up to settle industrial difficulties between the coal men and their employees. It is a fact-finding body, in-

structed to make a report to Congress on many and all the phases of the coal industry and to give recommendations as to legislation, if any, that Congress might enact to remedy the troubles that may be found. Whether or not there will be a strike next April, then, turns on what the parties involved, the United Mine Workers on the one part and the several operators' groups on the other, do between now and that fateful day. In October, in November and again in December the representatives of the union and the operators held meetings looking toward a solution of their immediate difficulty—a basis for negotiation. They begin the new year with yet more conferences on the same subject. Looking for the moment beyond the, as yet unsolved, question of a basis of negotiation, inquire into a few of the facts that bear on the possibilities of the negotiations themselves.

Wages stand at the top of that list. Last spring, if ever, economic conditions warranted the demand of the operators that the union take a reduction in wages. Descending cost of living throughout 1921, lessened demand for coal, a universal urge for lower costs in every line supported the contentions of the operators. The union refused even to give the matter the consideration it warranted; struck, and won. The tide has turned. Wages in other, non-union, industries that reached bottom a year ago are mounting although they have not reached the post-war level still maintained by the United Mine Workers. It will be much more difficult for the coal operators in 1923 than in 1922 to argue for a reduction. Having bridged the chasm of 1922 the union is in better position for the next contract. In fact, so far as wages are concerned, the union has already made known its intention. A contract for two years at the present wage scale will be demanded from the bituminous-coal operators, if they can ever be lined up to listen to those demands. The union miner is quite serious about his demand for a six-hour day and a five-day week, but so is the operator in his demand for the abolition of the check-off. Neither stands much chance this year. So it most likely will be wages and duration of contract that will be negotiated, or struck for, in 1923.

Before they can discuss wages, etc., there must be a meeting. Who will attend that meeting? That is the question before the house now. That is what they will discuss next week. The operators wish to appear in groups representing each district separately, of which there are fifteen. The miners are not willing, contending that to throw negotiations back to the field is but the first step toward taking it still further back—that is, to each mine—and thus destroying the power of the national union of mine workers. There is not so much to that argument since by doing that very thing last August in Cleveland—signing individuals—Mr. Lewis won his strike. It was thus and thus only that he preserved the national power of his organization.

Apparently the miners will treat on any other basis—a national body—a congregation of large groups or the old Central Competitive Field group. On no one of these have the operators agreed. The power of the union to apply uniformly its will on the industry is onerous to the operators, particularly in those districts coming into most direct competition with the non-union fields. Essentially, then, the present status of the case is that the union seeks to preserve and perpetrate its autonomy as a national wage fixer and the operators seek purely local autonomy and the right and opportunity to correct local inequalities.

It is this question that must be settled before peace can be assured the bituminous-coal industry. The conference for its solution calls for no ascertainments of fact—such as profits of operators or earnings of miners, now being investigated by the U. S. Coal Commission.

What the situation does demand is an earnest will to negotiate.

When Facts Are Most Useful

AS THE date for the preliminary report of the President's Coal Commission approaches, much interest is being manifested in what the commission may say at that time. The industry recognizes that the commission is composed of men of vision who are anxious to concentrate every ounce of their influence to do something constructive and helpful. It is recognized that a communication to Congress of the findings of facts with regard to the status of wage negotiations can be handled in a way to have a profound effect on that situation even though the commission itself take no part in those negotiations.

The commission be may expected to look on this problem as if it were the organized channel through which public opinion is to be expressed. Unquestionably it is its desire to encourage both the operators and the mine workers to get together. It is believed that each side to the controversy has great confidence in the commission. Each side would be inclined to accept its findings of fact.

An authoritative statement from the commission as to its finding of fact in regard to the cost of production, even if incomplete, would be of the greatest importance to those at the wage scale conference. If additional facts could be made available as to the relative costs of production in the union and the non-union fields, it would have great significance. Any facts which the commission may announce with regard to the relative rates of pay in coal mining, as compared with those in other industries, would be seized upon eagerly by the Chicago conferees.

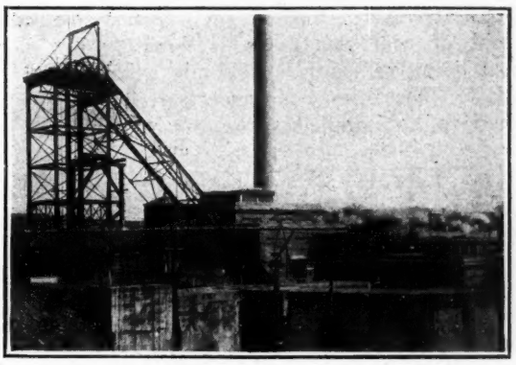
The operators in the union fields contend that they cannot pay the present scale and compete with non-union operations. The commission may be in a position to make some authoritative statement by Jan. 15 as to the point where the non-union costs begin to be an important factor in competition. It would be helpful also to have an authoritative statement as to whether or not non-union miners have larger annual earnings than those who draw, at times, the higher pay in the unionized districts.

These examples give an idea of the very important influence the coal commission could exert on the wage-scale conferences and it is the general opinion that all facts in the possession of the commission which may be helpful in giving the mine workers and the operators, engaged these next few months in the wage-scale conferences, authoritative data, will be put forward as they become available.

The point must not be overlooked, however, that the very incompleteness of the data that can be collected, compiled and prepared by Jan. 15 argues against the fulfillment of this ideal of immediate helpfulness. We are not to be too hopeful, for we must appreciate the handicap of time, the initial unfamiliarity of the commissioners themselves with the details of their task and the grave responsibility that will attach to any and every statement they issue.

Cutting Hoisting Costs At a Shaft With Five Levels

By Dever C. Ashmead*
Kingston, Pa.



Peach Orchard Shaft Had Two Hoists for Its Many Levels—One Hoist and One Level Station Recently Abandoned and All Coal Brought Up One Shaft—Locomotive Formerly Crossed Over Cage

WHEN engineers lay out a track system on paper they frequently fail to visualize just how it will accommodate itself to the needs of the mine. They see some of the essentials, of course, but many others, just as important, are entirely overlooked. This lack of vision is the cause of many poorly laid-out mining plants. It is to be noted not only in the general scheme of operation but also in operating details. For this reason the engineer should depend not only on his own inventiveness and imagination but on the experience of others. They also have had their difficulties and either have seen ways of correcting them or have found them sooner or later after construction was completed.

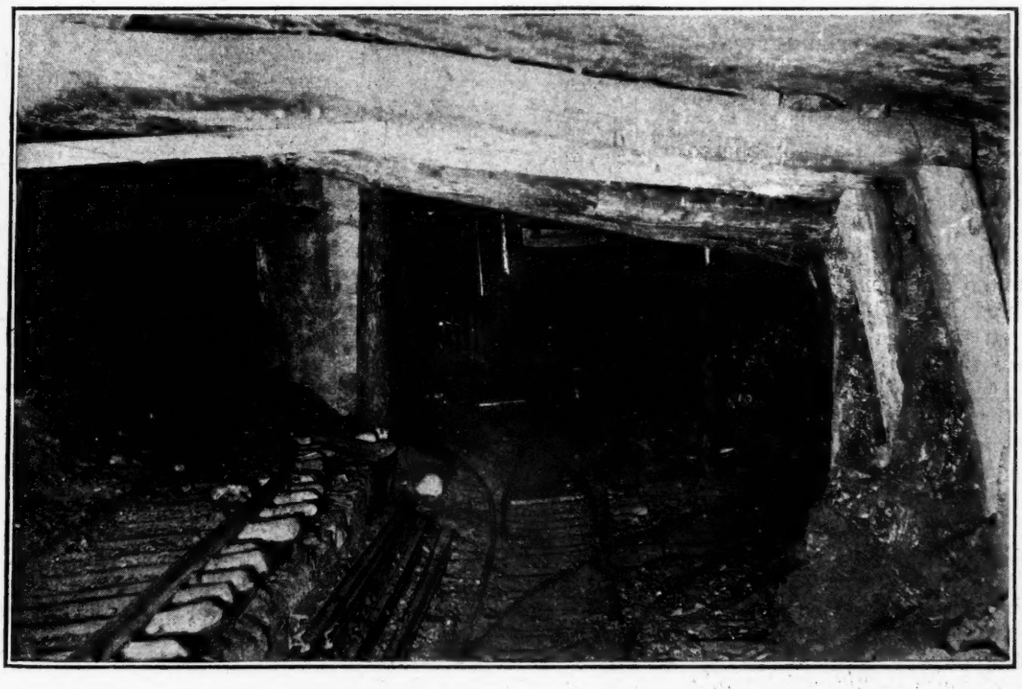
Just as soon as the plant is operating, these inadequacies in the original layout are seen. The loss of time and money becomes apparent and changes ultimately have to be made which redound but little to the credit of the designer, who naturally is made the butt of much criticism by the official in charge of actual operation.

Some criticisms of course are delayed. Everything works well until distances become longer and traffic heavier or till changes of equipment make the particular layout unsuitable. A little prophetic foresight always is an advantageous quality in the engineer. Especially is it well to keep in mind that a larger tonnage may be desired, labor may become scarce or the price of labor so increase as to make operation by the methods provided uneconomical. When all is said, however, it must be conceded that it would have been hard to forecast the progress of modern development and in many cases it would not have been prudent to do so.

Ten or twelve years ago the cost of labor was lower

*Anthracite Field Editor, *Coal Age*.

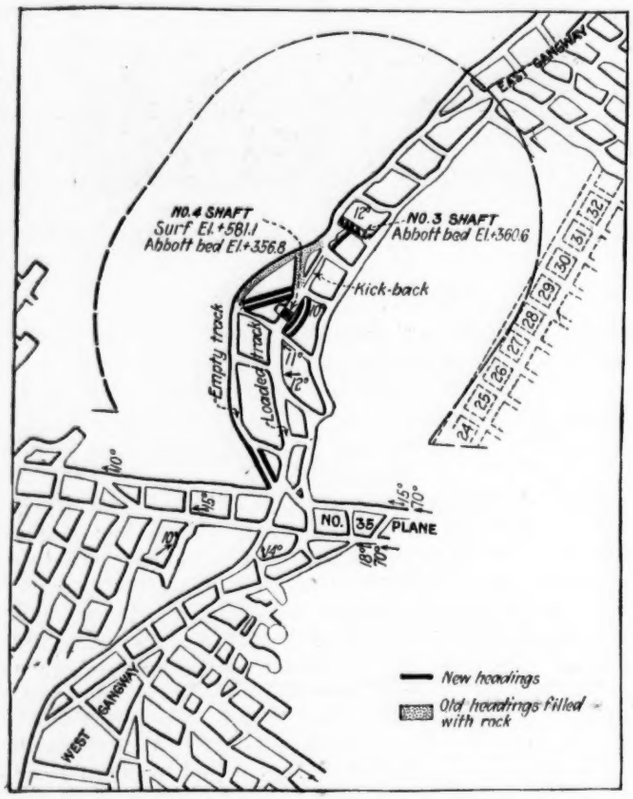
NOTE—The illustration in the headpiece shows No. 3 shaft of the Peach Orchard colliery of the Glen Alden Coal Co. near Wilkes-Barre, Pa. In the background is the boiler plant, the hoisting engine house, the substation and the fan house.



Abbott Shaft Station

View of the empty-car side of No. 3 shaft. The car kicked out of the cage in either compartment passes toward the foreground, where a kickback catches it and drives it back into the empty-car track on the right in which the "slum," or empty pit, is located. On the left is a passageway running around the shaft. The Abbott bed is about 360 ft. above sea level at this point and 220 ft. below the surface of the ground.

by far than today. It was not only cheaper but more plentiful, and an extra man or so made little difference. So the use of mechanism was not so necessary. The cost of coal was disproportionately low because the coal being mined was not only thicker but nearer the shaft. The thin beds were neglected. Less water also had to be handled. For these many reasons a



OLD AND NEW LAYOUT AT ABBOTT LANDING

The empty cars formerly collected on the side of the No. 4 shaft adjacent to shaft No. 3 and were brought back by a locomotive which had to cross the cage in order to reach them. Now, a kickback between the two shafts returns the cars, one by one, to a switch which automatically directs them to the empty pit.

greater cost in handling and preparing the coal was counterbalanced by lower cost at the working face.

Many of the plants or parts of plants designed in those earlier days have recently been remodeled in order to cut down operating cost. Among them is the Peach Orchard Colliery, opened twelve years ago by the coal department of the Delaware, Lackawanna & Western R.R., since succeeded by the Glen Alden Coal Co. Two shafts were sunk for the hoisting of the coal from six different levels, one shaft being intended to hoist the coal from four levels and the other from two. To handle this coal at the underground levels seven men were required and often an extra man or even two had to be employed. Because there were two shafts five hoisting engineers had to be provided, one shaft working two shifts and the other three. Furthermore, two men were needed for decaging, one at each shaft.

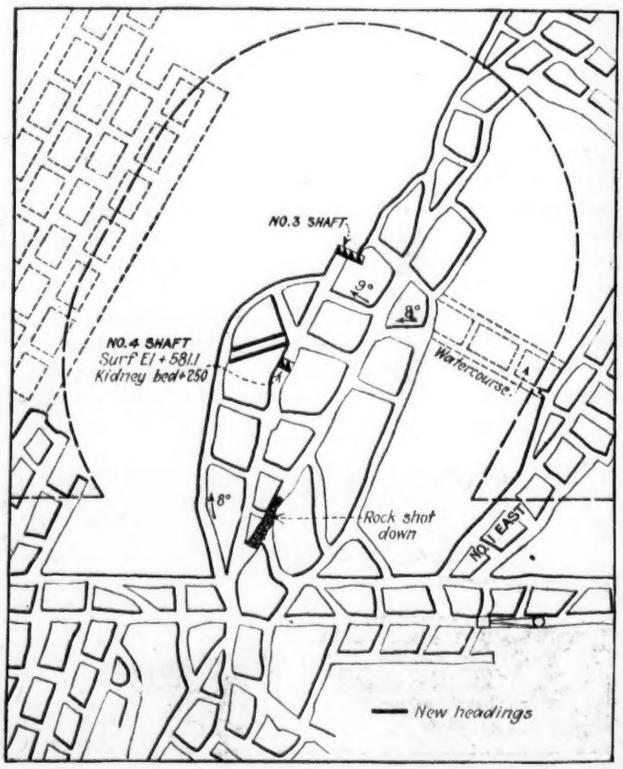
Here, then, was an expenditure for the labor of fourteen to sixteen men. At the time no one considered the cost too high, but with the labor scale at its present level the waste would be considered almost criminal.

Moreover, the method of operation had elements of danger that could have been avoided. The empty cars had to be pulled backward across the cage in order to take them to the loading faces. This was a dangerous practice, as a mistake might occur that would let a car or a locomotive fall down the shaft. Furthermore, the cage had to be held to permit the backward and forward passage of the trip, and that in itself was a cause of much delay.

To avoid excessive cost and unnecessary hazard the layout had to be changed. It was found that one hoisting engine was capable of raising all the coal produced in the mine. It was decided therefore to hoist all the coal from one shaft and to use the other for raising and lowering men and for the delivery of supplies. This obviated much of the confusion due to using each cage for two purposes. It enabled the men at the coal-hoisting shaft to attend strictly to that business, obviating many delays resulting from the loading and unloading of the cage.

In laying out the new shaft stations great care was taken to reduce operating costs to a minimum and to avoid delays. Not only was the new shaft station carefully planned but the old ones were entirely remodeled so that they could be more economically operated.

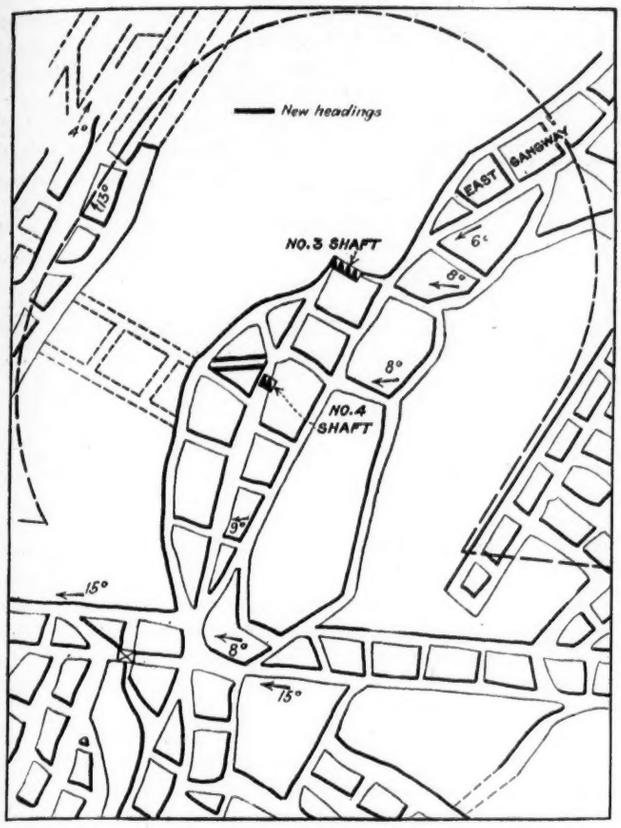
All the coal from the Bennett and the Red Ash beds was formerly hoisted up No. 3 shaft, No. 4 shaft receiving the coal from the Abbott, Kidney, Hillman and



REMODELING OF THE LANDING AT KIDNEY BED

The Kidney bed is 330 ft. below the surface. By driving a crosscut the return track was shortened, making the grades steeper. Elsewhere, the grades were eased by blowing rock. The rearrangement made the use of a mule unnecessary, as the cars ran to the rope automatically without either hauling or pushing.

Cooper beds. The Bennett and Cooper beds being close together it was found possible to abandon the shaft station in the Bennett bed and build a new haulage road from that bed to the shaft station on the Cooper bed. This left only the Red Ash with a station on No. 3 shaft, and a new station for the coal from that bed was built at shaft No. 4, No. 3 being converted into a man-and-material shaft.



HILLMAN STATION SUPPLIED BY LOCOMOTIVE

This station required a change similar to that made in the Kidney bed. The cars run back to the empty pit in the heading on the left from a kickback near No. 4 shaft.

The changes made it possible to dispense with four of the men originally employed underground, two foot tenders, one runner and one shaftman. In addition, it was possible to dispense with one substation man. On the surface one cager replaced the two formerly employed, and one of the five hoisting engineers was dispensed with. In all, the force was reduced by seven men. This saving totaled approximately $12,000 a year, which would pay interest on $200,000 when figured at 6 per cent.

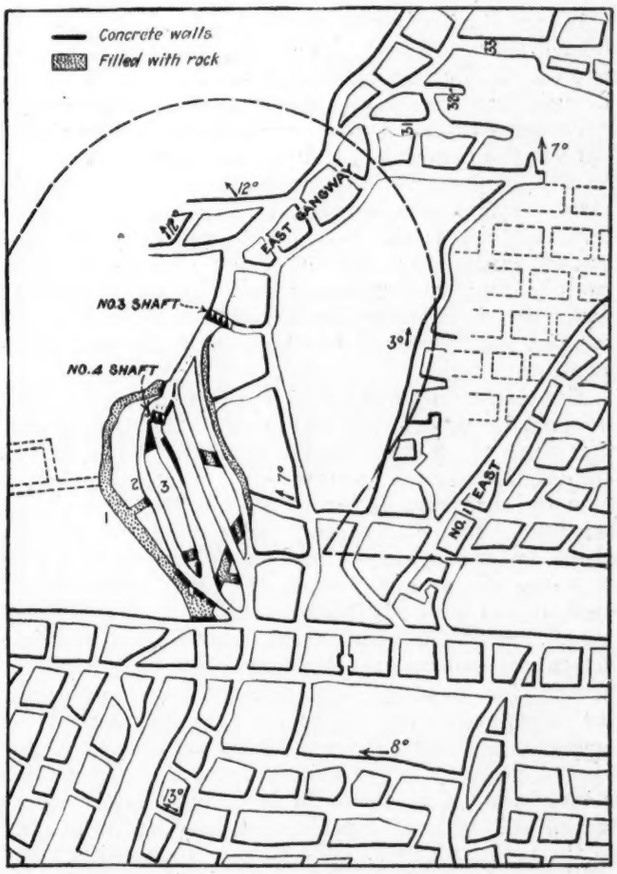
Locomotive Crossed Cage to Reach Empties

The changes at the various shaft stations will be detailed one by one starting from the surface downward, the first station being in the Abbott bed. Here, as the coal was being hoisted already from the No. 4 shaft and was to continue to use the same shaft as its means of exit, no new station had to be built but important changes were made nevertheless. At this station the locomotive had to cross the cage to reach the empty mine cars. After being coupled up it pulled the cars back across the cage. To avoid the necessity for this a new passage for men and materials was constructed around the end of the shaft.

Part of the old runaround on the other side of the shaft was abandoned and that part which was no longer needed was tightly filled with rock so as to give additional support to the shaft. A roadway was driven from a point on the side of the shaft nearest to No. 3 to connect with the empty-car track. In order to improve the grade, rock was lifted in this latter track. The empty cars are now kicked off the cage by the loaded cars. They run a short distance to a kick-back, which causes them to travel to the empty track by the passageway described. Thus it is not necessary for the locomotive as in the past to cross the cage to gather its trip of empty cars.

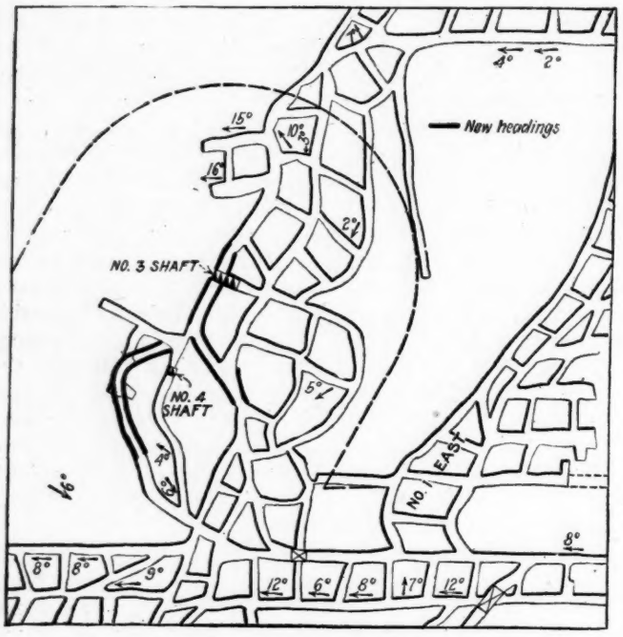
The shaft station of the Kidney bed did not need relocation and only a rearrangement of tracks was necessary. The loaded cars are delivered to this shaft by means of a rope. The original grade at this shaft was not sufficient to make the cars drop by gravity from the end of the rope to the shaft, so a mule had to be kept at this point to move them. By taking down 4 ft. of roof the grade was increased sufficiently to enable the cars to run by gravity. With the old arrangement the empty track also had an insufficient fall, and the cars would not run by gravity to the rope. Consequently they had to be helped along the road by man power. A new road was cut, obviating this difficulty. It shortened the distance and so increased the gradient. By means of these changes a mule was dispensed with and much hand labor avoided.

The Hillman station was similar to the Kidney station except that the mine cars were delivered by a locomotive instead of a rope. Consequently, the grade of the loaded tracks needed no change, but the empty tracks had to be reconstructed so that the empty cars would run far enough from the shaft to give storage room. To get this grade a short cut was driven to the "slum," or empty pit. This shortening of the distance increased the grade considerably.



COOPER BED DEEP ENOUGH TO NEED STRENGTHENING

Some of the crosscuts and gangways and unused parts of the latter were filled to the roof with rock. Concrete walls were built blocking in the ends of crosscuts and in places lining headings, thus making movement impossible. Gangways were driven for the purpose of obtaining roadways that would conform better to the needs of the empty track. Connection was made between Cooper and Bennett beds, and coal from both beds was brought out to the landing at this shaft.



RED ASH LANDING 1,060 FT. BELOW SURFACE

This is the deepest of all the workings at this mine. It lies over 500 ft. below sea level. Two workings are shown over one another on the left of the shaft, one the new empty track and the other a pump chamber. This landing to No. 4 shaft had to be constructed in its entirety because the coal formerly was hoisted by No. 3 shaft and only the men descended by No. 4.

In some other parts of the field the Cooper and Bennett beds are one. They unite to form the Baltimore bed. But on this property they are separated by a parting of rock. As stated already, arrangements were made by which the coal from both beds should come to the Cooper bed and be hoisted up shaft No. 4. In the old Cooper station no runaround had been provided, so it was necessary to bring the empty mine cars back across the cage. This was dangerous and caused much delay. In the illustration showing the work in this bed concrete is shown in solid black, old gangways in ordinary black lines, abandoned headings stippled and narrowed headings with the part abandoned in stipple.

The station at shaft No. 3 was left in place so that it could be used in an emergency. All the changes that were made were at No. 4 shaft. When it was decided to make the improvements a gangway marked *1* in the plan was driven to accommodate the empty-car track, but this roadway did not have a suitable grade for that purpose, and as it was thought that it would too greatly weaken the shaft pillar if left open, it was filled with rock to the roof. A new heading, *2*, just to the right of the shaft station was then driven to accommodate the empty tracks. Sufficient bottom was taken up to provide the proper grade for the empty mine cars. With the new arrangement the empty cars, after they are kicked off the cage, run toward No. 3 shaft for a short distance till they reach a kick-back. They then run downgrade on the empty track. All the unused portions of headings were filled to the roof with rock. The ends of the headings and of the cross-cuts thus filled were closed off with concrete walls.

Wherever the shaft station was too wide, concrete walls were placed, thus bringing them back to their proper width. These walls are shown in the map in heavy black. As it was thought that the heading used for the loaded track leading to the old shaft station was too wide, it was narrowed by building stone walls up the side of the roadway. In consequence the roof around the shaft is now satisfactorily supported.

At the Red Ash bed an entirely new shaft station had to be provided because the coal was formerly hoisted through shaft No. 3 as originally constructed, No. 4 shaft, which came down to this level, being used solely for the hoisting and lowering of men and lowering of materials. This new station is provided with a double track and the method of handling cars is similar to that in the Hillman bed. The new work is shown in heavy black lines in the illustration. Formerly the empty cars had to be hauled across the cage as was done in other of the stations in this mine.

Electric Bell Trapper for Partings

BY CECIL ROWE*
Tokay, N. M.

FOR several years at the B. H. Kinney Coal Mine a boy was employed as trapper and to notify the rope runner in the main slope if a trip was standing in the parting of one of the headings to the right into which he desired to place cars. From the point where the trip branched off the main slope to the end of the parting was somewhat more than 500 ft.

Being around a curve, the rope runner when in the slope was unable to tell whether the parting held a loaded trip or was empty. Consequently a trapper had to be provided to notify the rope runner when the cars should be run in. A simple and inexpensive change was made in the wiring already installed. This modification cut out the cost of a boy trapper and used only a few cents' worth of electricity each day.

Before the change was made two wires, both of No. 10 galvanized iron wire (*1* and *2* in the illustration), were provided for a bell-ringing circuit. The power used was 20 volts alternating current. This voltage was obtained by connecting in the 220-volt circuit transformers such as are adapted for the ringing of small bells. In making the change one extra galvanized wire, *3*, like those numbered *1* and *2*, was strung along the heading parallel to the other two.

The only other change necessary was to cut out two small parts of the rail on track *B* and replace the portions removed with insulating material, *AA*. Fiber or rubber could be used for that purpose, but a block of hardwood will serve the purpose admirably.

It also was found convenient to place wires *2* and *3* on longer insulators than wire *1* so that the rope runner would not mistake their identity when making contacts to ascertain whether a trip was standing on the parting.

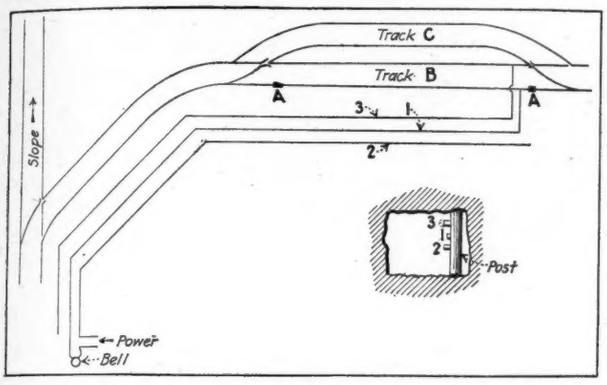
Where there is a trip on the loaded track, *B*, wire *3* automatically is made part of an open circuit with wire *1*, the connection being through the wheels and axles of the cars. When there is no trip in the parting on track *B* there is no connection between wires *1* and *3*, as the rail between the insulated portions *AA* cannot complete its circuit.

When the rope runner has a loaded trip ready to drop into the parting he places his bell ringer across wires *3* and *2* and if the bell rings this notifies him that there is a trip in the parting and that he must wait. After trying at intervals he finds at last a time

*Mining engineer, B. H. Kinney Coal Mine.

when the bell does not ring by connecting these two wires. Then he bells the engineer the regular signals by using the original bell wires, *1* and *2*.

It may be asked what would be the result if the electricity failed or were turned off. In that event, of course, the bell would not ring, although a loaded trip might be in the parting. Provision has been made for



MEANS FOR FINDING IF SIDE TRACK IS FULL

This generalized drawing shows how when cars are on Track B a circuit can be established between wires 3 and 1 through the axles of the cars providing the wires are connected by the rope rider.

this by placing an electric lamp in the power circuit near the switch that leads from the slope to the parting. The rope runner then can tell at a glance whether the current is on or off.

This lamp serves a two-fold purpose. It notifies the rope runner when the wires are charged and it furnishes him with ample light for the manipulation of the switch. Track *C* is used for handling empty cars. The plan just described has been in use for several years and has not given any trouble.

Lifting Bottom in Mine Openings Without Disturbing Timber Sets

BY ALPHONSE F. BROSKY*
Pittsburgh, Pa.

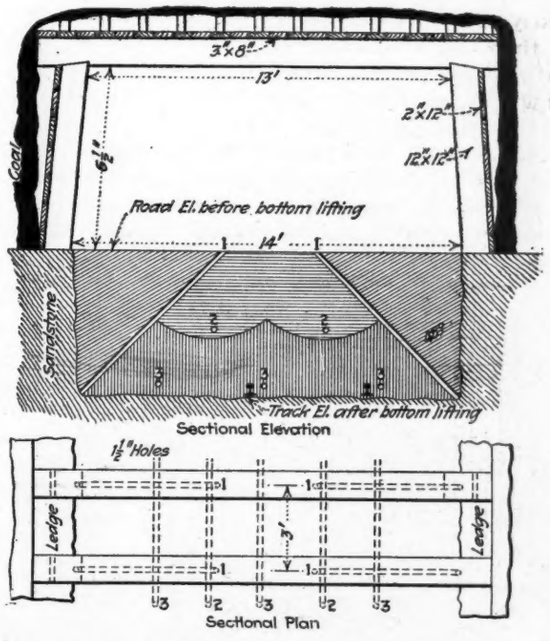
HOW often in the driving of an opening for haulage from the outcrop does it become necessary to change the grade after the entry has penetrated some distance from the outside? It is a problem that crops up almost daily at some one mine or another. The coal may persistently follow a regular grade under the body of the hill, but near the crop it may rise or fall for a short distance without any regard to the regular lie of the measure.

In the event that the entry goes to the dip so as to fall from one to three feet in one hundred for a moderate distance and goes level from there on, it is customary to take bottom in the haulageway from the mine portal in so as to eliminate the adverse grade. This is done before a permanent track is laid. But when the entry was driven it may have been necessary to timber and lag it as it progressed inward. This support may be continued for a considerable distance if the cover is light or of a drummy nature. Should the bottom be hard, much explosive may have to be used in lifting the bottom and unless care is taken timbers may be shot out, bringing down the roof and causing much necessary mucking and retimbering.

*Bituminous Field Editor, *Coal Age*.

J. L. Evans, the mine foreman in mine No. 304 of the Consolidation Coal Co., at Jenkins, Ky., has an interesting way of accomplishing this task with minimum expense and labor. He had a condition similar to that already described in the No. 302 mine of the Elkhorn Coal Corporation at Mater, Ky. An opening was started, which later was to become the main haulage road. A prospect hole some 2,000 ft. from the pit mouth indicated that the coal dipped inby. When the opening had penetrated 180 ft., however, it was discovered that the elevation of the coal at that point was 3 ft. below its level at the outcrop, and then it became level for 1,000 ft., where it dipped again. As driving and timbering were carried on simultaneously and as the bottom was sandstone, the work of taking up bottom was precarious. A 1-per cent grade in favor of the loads was made by lifting 5 ft. of bottom at the pit mouth and a decreasing thickness inward to the end of the dip. The work was done without disturbing a single timber. When the job was completed the base of the batter legs of the timber sets rested on a ledge, the upper face of which had originally been part of the bottom.

The entry was 14 ft. wide. Timber sets of 12x12-in. oak stood on 3-ft. centers. These were hitched and lagged as indicated in the sketches shown in the illustration. The arrangement of the shotholes for the blasting of the bottom also is indicated. The first round of holes was drilled in line with the timber set at an angle of 45 deg. These were the breakout holes.



GRADE ADJUSTED WITHOUT DISLODGING TIMBERS

By drilling and shooting the bottom, using 45-deg. holes, a ridge is formed in the center of the roadway which is later reduced by further drilling and shooting, the holes being directed horizontally.

The second and third rounds of holes were drilled horizontally as shown.

The total cost of the job was approximately $600. This sum would not even pay for retimbering such a roadway. To lift the bottom, holes were drilled of 1½ in. diameter and charged with a 60-per cent dynamite for the first round and with a 40-per cent dynamite for the second and third rounds. With a crew of three men the job was completed in 60 days.

Sinking a Shaft in Illinois Through Quicksand*

Expecting Only Four Feet of Running Sand and Finding Nearly Thirty Feet, Shaft Had to Be Enlarged and Sheet Piling Driven to Bedrock When Jacking Method Failed

BY D. P. BUCHANAN
Chicago, Ill.

HOW unreliable the diamond core drill may be in prospecting in any formation except solid rock is evidenced by the experience in sinking the shaft of Mine No. 15 of the Old Ben Coal Corporation, at West Frankfort, Ill. The log of the hole, drilled to ascertain the conditions at this shaft, shows only 4 ft. of sand, whereas in reality 25 to 29 ft. was encountered before the rock was reached. No trouble had been experienced in sinking the near-by airshaft, and it was thought that this shaft also could be sunk without difficulty. It is the common practice to rely on a single boring, and with the experience in the airshaft as a guide it was not thought necessary to make an exception in this instance.

The log of the surface measures ran as follows:

	From, Ft.	To, Ft.	Thickness of Strata, Ft.
Sandy loam	0	3	3
Light sandy clay	3	20	17
Yellow clay	20	85	65
Sand with excessive water	85	89	4
Soft clay shale	89	90	1

Relying on this log, construction was commenced with the timbering at the exact size planned for the finished shaft, allowance being made, of course, for the concrete lining but not for any divergence of the shaft from the true line.

Until a shaft reaches bedrock the curbing or lining must be supported from the surface. After hard rock is reached the timbers are securely anchored, but during the excavation their weight is borne by a rectangular set of logs known as the bearing timbers or shaft template. These are rough logs from 16 to 30 in. in diameter. Two of them are buried in the ground parallel to each other. The other two are laid crosswise and are securely fastened to the first pair by drift pins.

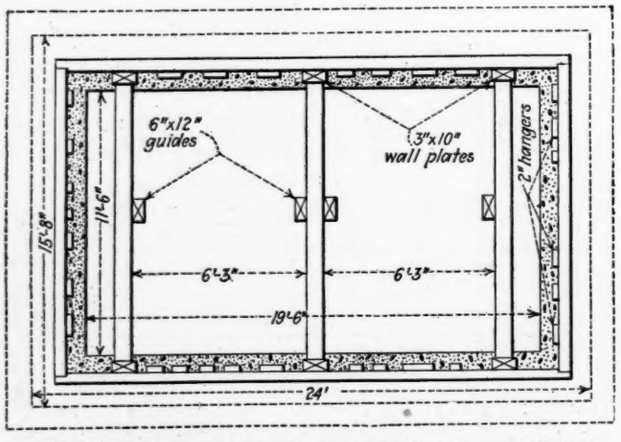


FIG. 1—SHAPE OF SHAFT AS ORIGINALLY PLANNED

As the quicksand was thick and extremely fluid it was found necessary to change the cross-section and ultimately, in the part of the shaft through the sand and clays, the concrete lining on the left was placed so that its outer line was the same as the line originally planned for the right side of the left line of buntons, the quarter shaft being omitted altogether on that end of the shaft.

To insure a strong support the ends of the logs must project 10 ft. to 15 ft. beyond the shaft opening. The inner surfaces of the timbers are adzed to align them with the shaft curbing, which is attached to them by cables. Plumb bobs are suspended from the corners of the template to insure a perpendicular excavation. The first 3 ft. of sandy loam and also the 17-ft. band of sandy clay underneath it were excavated by long-handled shovels without the use of explosives.

While this ground was being excavated the temporary headframe for the sinking of the shaft was under construction. This frame was of steel. It was equipped with only one sheave, which was set in such a way that it could be shifted to either of the two main compartments of the shaft. The wooden trestle and hopper into which the excavated material was dumped was about 16 ft. above ground level.

The headframe was so constructed that there was headroom enough below the sheaves only to clear the clamps above the bucket when the latter was hoisted to the elevation of the trestle. The buckets used were made of boiler steel and were approximately 2½ ft. in diameter by 3½ ft. deep with a capacity of about 17 cu.ft. When the hard yellow clay was reached hand digging became more difficult, and an occasional "buster" shot of dynamite was fired to loosen the ground. The excavation was carried on in this manner to a depth of 63 ft. through soil so devoid of water that a pump was unnecessary. When the construction of No. 15 was commenced the excavation was made large enough to permit of a cross-section of 11½x19½ ft.

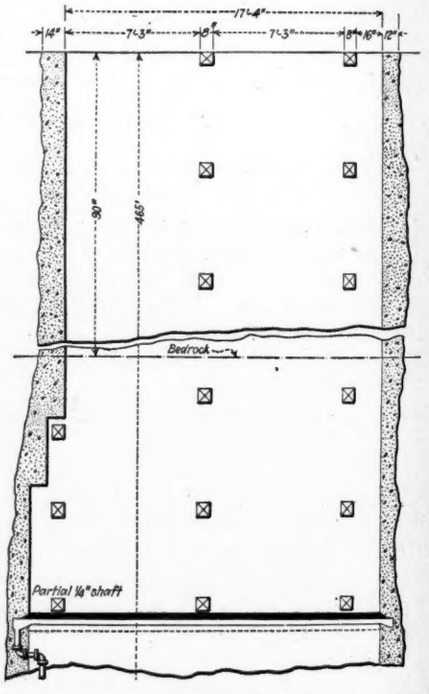


FIG. 2—SHOWS HOW QUARTER SHAFT WAS RESTORED

Below the sands and clays the quarter shaft was quite readily dug back into the walls and it was constructed accordingly so as to permit the air the more readily to pass the moving equipment in the shaft. Note the water ring at the bottom of the drawing, which in the shaft lies 200 ft. below the surface.

*Abstracted from *The Technograph*, University of Illinois, Urbana, Ill.

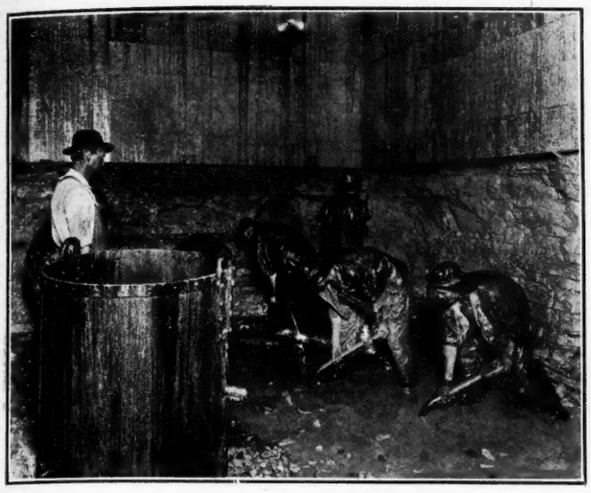


FIG. 2—MUCKING SHAFT FLOOR FOR FURTHER ADVANCE

Crew is getting shaft in shape for the next shift to sink blasting holes and shoot up a further round of shots. The shaft at this point is below the quicksand.

after the curbing was in place. The latter was of 6x10-in. yellow pine (Fig. 1). These are, of course, the full dimensions. Timbers do not as a rule measure as much as the dimensions indicate, however, for practically ⅛ in. is planed off in dressing them. Allowance must be made in shaft construction for this odd size, because the permanent hoisting cages usually are purchased before the guides are placed, and a deviation, however slight, therefore is serious.

At a depth of 63 ft. quicksand was encountered. Inasmuch as the log had shown only 4 ft. of sand no great difficulty was anticipated, but, as has been mentioned above, herein lay the fallacy of the log, for the sand lasted until the rock was reached, at 90 ft. A strongly reinforced wooden shoe with a 6x6x½-in. angle was constructed on the surface, knocked down, and reassembled at the shaft bottom.

Jacking Process Which Usually Succeeds

On top of the shoe the four sides were built up with 2x3-in. timbers laid flatwise, and ordinary house-raising jacks of various sizes from 10 to 18 in. in length and 3 in. in diameter were then set around the perimeter of the shaft on top of this timbering at about 4-ft. centers. This is a common method of sinking through shallow strata of sand, and although it is a slow process it is very effective in sand not thicker than 5 ft. The method consists of jacking down the shoe, the jacks operating against the shaft curbing, and as the space between is widened it is filled with more 2-in. plank nailed flatwise. As the jacking progresses the material is excavated by hand and hoisted.

It was necessary to pump continuously, as water was coming up through the sand and pouring in from the sides of the curbing. Two sinking pumps were kept in operation and even when no work was being done in the shaft large quantities of sand were brought up in the water. Naturally, the removal of this material from about the curbing caused the surface to cave in, bringing the weight of the material around the curbing against the timbers.

The buntons, which had not been designed for this unequal pressure, buckled and in many cases broke. It was necessary to install new timbers until the shaft was so obstructed that the work was continued only with great difficulty. This, together with the crookedness of the shaft caused by the bulging, necessitated a change in the method of sinking, as it was useless to go farther with the scheme then being used.

The decision to drive through the sand with United States steel sheet-piling was the result. Obstructed as it was with excess timbers the shaft did not present enough clearance for a piledriver or steam hammer. It was necessary, therefore, to begin again at the surface and widen the shaft down to the sand. The old timbering was removed as the work progressed, and the shaft was sufficiently enlarged to accommodate the hammer.

Even then there was scarcely enough clearance for it, and contrary to the usual procedure of setting all the piles in place before driving any one pile to the rock, each pile was so driven before setting the one next to it. It was necessary to calk the cracks to keep out the quicksand. The pressure was so great that the water was forced beneath the piles and rose in the shaft, making it necessary to keep the pumps working. Elaborate timber sets were placed at 4-ft. vertical intervals to hold the piling in place as the excavation continued through the depth of the sand. The material inside the piling was removed and the shale was picked from beneath it by hand, after which it was driven below the solid measures to a depth of 4 ft.

Shafts Must Be Concreted from Rock Up

The Illinois mining laws require that all shafts be concreted from the rock to the surface. This work was immediately commenced, therefore, as soon as the rock was reached. A 2-ft. kerf or undercut was made, and the anchor block was completed before the upper curbing was poured in. The curbing was then poured in 4-ft. sections, working from the bottom up. For obvious economical reasons old scrap steel, mainly 20- to 40-lb. rail, was used for reinforcement. This material was employed in exactly the same manner as is customary with regular twisted reinforcing rods. A rectangular system of bracing was used, the rails being laid horizontally and vertically on about 7-in. centers. The vertical rails were allowed to project from one ring of concrete about 4 ft. into the next above it.

When concreting was begun it was found that a longitudinal section of the shaft was irregular, and in order to insure a sufficient thickness to the curbing so

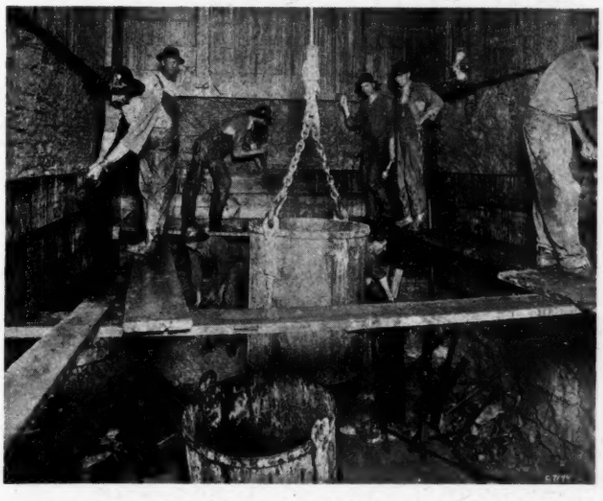


FIG. 4—TIMBERING SIDES PRIOR TO CLEANING UP

The shaft has reached a point 200 ft. below the surface. Here the main difficulties of the shafting job are happily at an end, and the shaft is being sunk through solid rock.

that it could withstand the pressure the shaft had to be shortened, one quarter-shaft being dispensed with (Fig. 2). As soon as the excavation was continued in the solid measures it was again lengthened so that the quarter-shaft could be constructed. The lost time and extra expense resulting from this lengthening were justified by the increased return airway and more rapid hoisting which it provided.

Explosives Used Sparingly Near Quicksand

In order not to disturb the rock immediately beneath the quicksand no explosives were used until the work had progressed by hand picking and drilling to a depth of some 10 to 12 ft. below the sand. This care was necessary to avoid shattering the rock and flooding the shaft. At this point machine drilling and blasting were first employed, the wedge or center-sumping cut being used. In this cut a central wedge is first blasted out, leaving free working faces for the remaining side shots. The drills used during this phase of the work were "jackhammers" or hand-held rotative hammer drills. Straight dynamite of 40 per cent strength was the only explosive used. The sinking was completed by this method, the total depth to the bottom of the sump being 465 ft.

A water ring (Fig. 2) was cut out of the rock at a point about 200 ft. deep to drain the seepage. Wire netting was hung from the curbing by long staples, and the entire shaft, beginning from the bottom, was coated with "gunite" by a cement gun suspended on a temporary cage. "Gunite" is impervious to moisture, so the only water collected by the ring comes from the surface or is moisture that condenses on the cool concrete during the summer months.

With this lining completed, the actual sinking was accomplished. All that then remained to be done was the placing of the guides (Fig. 1), which were installed while the permanent headframe was under construction. Because of the deceptive prospect log and the excessive amount of quicksand encountered, the entire project required nearly a year for completion.

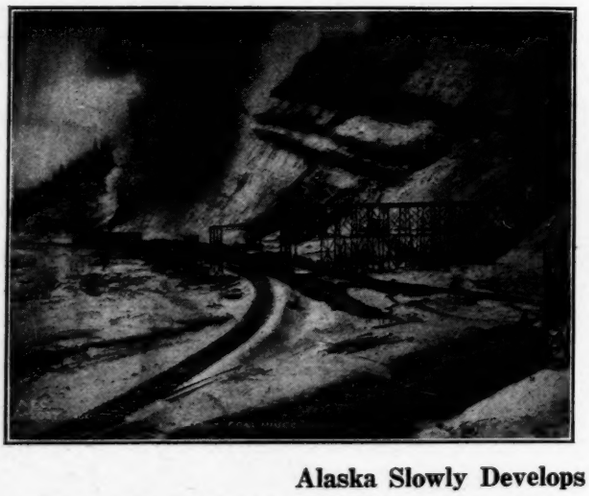
Six Coal Articles Presented at Vancouver

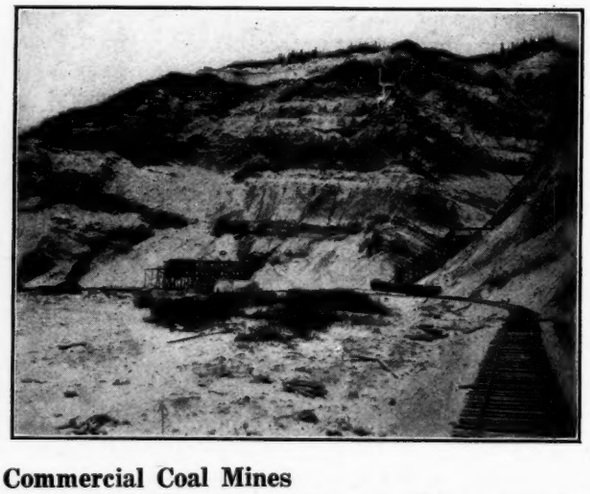
OF THE three days during which the Canadian Institute of Mining and Metallurgy held its annual meeting in Vancouver, B. C., Nov. 15 to 17, only one day, Nov. 17, was devoted to coal mining. On the morning of that day four coal papers were presented: "The Complete Gasification of Coal and Its Bearing on the National Fuel Problem," by John Keillor, Vancouver, B. C.; "The Development of the Coal Industry in Canada," by F. W. Gray, Montreal; "The Coal Resources of Southern Vancouver Island," by J. D. MacKenzie, Vancouver, B. C., and "Progressive Coal Mining," by George A. McHattie, Vancouver, B. C.

Many of the delegates took advantage of the opportunity afforded them to visit the coal mines of Vancouver Island in the afternoon, an excursion having been arranged for the two-hour steamer run across the gulf. In Nanaimo the party was taken through No. 1 mine of the Canadian Western Fuel Corporation, and in the evening a second business session took place. At this, a paper was presented by J. A. Richards, district inspector of mines, Edmonton, Alta., on the "Coal Mining Industry of Alberta." It was followed by a paper entitled "Some Interesting Features of Modern Coal Mines," by R. R. Wilson, of Victoria, B. C.

Thomas Graham, superintendent of the Canadian Collieries (Dunsmuir's), Ltd., referred in congratulatory terms to Mr. Richards' address. He had listened with great interest to his account of the progress the industry was making in the Province of Alberta. Within the next twenty-five years, he predicted, this province would be the largest coal producer in the British Empire.

Recognition of the certificates granted to mine officials in one province should be recognized, it was urged, in all the other provinces of Canada. It was argued that if such an agreement could be reached Canadian certificates would carry more weight outside the Dominion than they do at present. A committee was appointed to fully investigate and report on the matter.





Alaska Slowly Develops Commercial Coal Mines

Alaska, loudly proclaimed as the Eldorado of the coal man, as a land from which fortunes were to be made, has been quite slow to produce coal, partly because the beds are too often impure, too badly contorted by faults and inconformities, too far from consuming points and too greatly beset with difficulties of the terrain. But some mines are being started. A standard-gage spur has been constructed from the Alaska R.R. to the mines of the Healy River Coal Corporation. The development of this mine on the upper reaches of the railroad promises to have an important bearing on the whole economic situation in the Fairbanks region. The accompanying photographs give an idea of the formation and show the newly laid track facilities as well as the provisions which have been made for handling the output of the property. These illustrations show the status of the mines as of Nov. 3 of this year.

Means Provided to Prevent Abuse of Power in The Federal Coal Council of Germany*

Three Barriers Serve to Promote "Interest" of Community as a Whole"—Conditions of Delivery and Commercial Credits Regulated—Mines Empowered to Appeal from Syndicate and Association Decisions—Teaching Heat Economy

BY F. Z. NEDDEN, M. E.

THOUGH the operators are in a minority as compared with consumers in the Federal Coal Council of Germany, the interest of the miners' representatives in questions affecting development of production is obvious. Furthermore, all coal and lignite mines are combined in the National Coal Association and their representatives usually constitute a unified vote. The consumers' representatives, on the other hand, do not hang together so solidly. The weight thus given to the owners should not be overestimated.

Three main barriers have been erected against their overstepping the limits of control by the community. First, the federal Secretary of Economics and Production has the right to participate or be represented in all meetings of the council or its committees, and to veto "all decisions dangerous to the common welfare." He has made use of this right on various occasions, especially by curbing as far as possible the upward trend of coal prices.

It has proved possible, by bringing to bear constitutional influences in the Reichstag, to prevent the abuse of this right by the Secretary of Economics and Production—yet, in order to keep his right of veto from becoming a weapon for bureaucracy, instead of a shield for the interests of the nation, the originators of the Coal Act, if redrawing it today, might perhaps prefer to accord the council the right of appeal to the Reichstag against this veto.

GIVE PUBLICITY TO PARLIAMENT SESSIONS

The second barrier consists in giving publicity to all full sessions of this coal parliament.

A third protection for the interests of the consumers and the community is provided by the institution of three standing "committees of experts," one dealing with technical, another with social questions connected with mining coal and lignite, and the third with all questions relating to the rational consumption of fuel. Each of these three committees is composed one-half of members of the council and their proxies, and the other half of co-optated specialists, such as experts regarding coke ovens, briquetting plants, shaft sinking, furnaces, gas generators, low-temperature tar, etc. Thus, if the consumers' or workmen's representatives in the council require expert advice on any question relating to coal or lignite or their derivatives they can at any time recur to the clause in the Coal Act which provides that "the committees of experts have to prepare for final decision all matters which the council may assign to them." Any statement made by any part of the council may under this clause be closely scrutinized by the best neutral experts, and no monopoly of superior economical or technical insight or experience can be claimed by the coal producers.

This self-administrative organization of the German coal trade has proved very effective in serving the purposes for which it was created, namely "to conduct under the general supervision of the federal government the coal trade, including importation and exportation of fuel, according to the interests of the community as a whole."

It should be emphasized again that the Federal Coal Council is supreme in its decisions as far as the coal trade is concerned and that it has legislative powers over it. The only difference as compared with a political parliament consists in its relation to the federal government: while this is responsible to the Reichstag, the Secretary of Economics and Production is not responsible to the Federal Coal Council. Obviously such responsibility would not be possible under any circumstances as otherwise the sovereignty of the people as represented by the Reichstag would be limited by the sovereignty of one fraction of it: the Coal Trade.

NATIONAL ASSOCIATION IS EXECUTIVE MEDIUM

The National Coal Association acts as the supreme executive organ of the Federal Coal Council. It carries out in detail the laws of the council, just as a department of the central government acts on the general rules of the Cabinet. In this capacity the National Coal Association keeps the statistical records of the coal trade, analyzes the costs of production within the various branches of coal and lignite mining, fixes the relation between prices according to qualities and special conditions in the various districts, etc. Prices, however, are fixed and become effective only through the co-operation of both the association and the council or its executive committee and are subject to the veto of the federal Secretary of Economics and Production.

The syndicates are actually carrying on the business. Through their trade organization or business connections they sell the fuel produced by their mines. They decide what percentage and what kind of fuel their members may put aside for their own consumption; they uniformly regulate conditions of delivery, of commercial credits, etc., in much the same way as the central office of a large concern takes care of the common interests of all its affiliated works. There is, however, one fundamental difference. Inasmuch as the mines were compelled under the Coal Trade Act to join their respective syndicates and as the syndicates do not hold any part of their shares, they must be protected against undue or arbitrary measures of the syndicate. It is possible, therefore, for each individual mine to appeal against the syndicate to the association, and from the decision of the association to that of the Federal Coal Council. The mode of procedure for these cases forms a particularly well considered part of the Coal Trade Act. During the first three years of its enforcement, however, very few cases of appeal have actually arisen.

*Concluding instalment of Herr Nedden's article on German coal control. The first part appeared in *Coal Age* last week.

In order to glean an idea as to the working of this whole machinery it might be well to get acquainted with a few examples of its activity. About a year ago the federal government and the Reichstag had to consider a considerable increase in the coal tax in order to meet the most pressing needs of the federal budget. It was planned to impose a tax of 40 per cent ad valorem uniformly on all kinds of coal and lignite, regardless of their origin, quality, calorific value or price. Without doubt this measure would have had a disastrous effect on the coal trade inasmuch as it would have completely upset the normal relations of prices and disturbed practically every business connection and contract. It was fortunate that the Federal Coal Council could here act as one unit. Though it was impossible, in view of the financial emergency of the federation, to cut down the rate from 40 per cent, yet the efforts and the technical and legal authority of the Federal Coal Council succeeded in obtaining the right for the National Coal Association to accommodate, under the supervision of the council, the percentages of taxation to the various classes of fuel, provided the total revenue be not decreased by this procedure. The scale of percentages having thus become an internal business of the council and association, the matter was quickly and smoothly settled to the satisfaction of all concerned and a grave danger to the trade was averted. At the same time the business of the Reichstag was greatly simplified.

Decision on Consumption by Collieries

Another example is offered by the occurrences in connection with the last renewal of the Ruhr-Syndicate agreement. The agreement, which was in effect when the Federal Coal Council was formed, expired on April 1, 1922. A number of influential members of the syndicate had redrawn one of the most essential paragraphs of the agreement on entirely new lines and outvoted the minority. The paragraph in question deals with collieries' "own consumption." Hitherto, only a definite circle of collieries which had entered the syndicate in combination with their affiliated furnaces, iron works, etc., and which controlled 81 per cent or more of the shares of these works, had been free of the obligation to sell through the syndicate all of their production and were allowed to reserve a certain percentage of their output for consumption in their affiliated works.

Within the last few years the tendency of amalgamating big industrial consumers of coal with collieries in order "to obtain a safe coal basis for these works," has made rapid strides. This development is well known under the slogan of the "formation of vertical trusts." This was the cause for the reformation of the privilege of "own consumption" in the syndicate agreement. According to the new wording of the paragraph, this privilege was henceforth to be granted every "combination" between a Ruhr colliery and one or more industrial works who applied for it, instead of being restricted to a definite number of concerns as hitherto. Second, any co-operation of colliery and works was to be regarded as a "combination" in the sense of this paragraph, if, instead of—as heretofore—81, only 50 per cent of the shares of one of the two enterprises were in possession of the other. Third, the privilege also was to be extended to parties who entered a contract with a Ruhr colliery for the continuous sale of at least 30,000 tons of coal annually for fifteen years.

Under the Coal Trade Act the syndicate agreement is subject to the approval of the Federal Coal Council. When the matter came before its forum serious misgivings were entertained by the most diverse parties lest this reformation of the privilege of own consumption might gravely endanger all the rest of the non-privileged collieries and consumers. It was feared that not only would a great quantity of coal thus be reserved to a privileged small group of giant combines but that these owing to their immediate influence on the collieries also would obtain the best qualities of fuel. The remainder, it was feared, would suffice neither in quantity nor in quality for all the other and smaller consumers, the market would be narrowed down, high grade coal be practically unobtainable, and the base of competition shifted still more to the advantage of the large concerns. The non-privileged collieries, too, entertained apprehensions lest under the new contract any fluctuation of the market would react heaviest upon them while the privileged collieries always would fall back on the stabilizing base-load of the requirements of their affiliated works or big contracts.

Regulation Redrawn in Orthodox Form

The Federal Coal Council, therefore, decided against the approval of this paragraph, which had to be reshaped very much in the traditional form, so that again a danger to the industrial development of the country and to the coal trade as a whole was averted by the Federal Coal Council.

While these two examples serve to show the protective powers of the council, a great deal of excellent productive work has been performed by it. For instance, through one of its three standing committees of experts a campaign has been begun for the improvement of heat economy, both in industry and in domestic use.

Further, by the co-operation of two of these standing committees with the council in full session, considerable has been accomplished in improving the quality of coal. In May, 1921, the scarcity of high-grade screened coal had become embarrassing. On probing, the experts found that the relation between the prices of screened and unscreened coal had, in the process of re-adapting them to the shifting levels of money value, gradually become so small as to make screening unprofitable for many collieries. It was then ascertained, by careful analysis of the relative over-all efficiency produced by screened and unscreened coal under boilers, in furnaces, etc., that the industry might well pay a slightly higher price for screened coal and yet buy the thermal unit as cheap in the shape of screened coal as in unscreened. By introducing this relation into the schedule of prices and slightly enlarging the margin between screened and unscreened coal screening became profitable again, and the output of screened coal increased 16 per cent within the next three months.

One remark only should be offered in conclusion, and this in connection with the most important business of the Federal Coal Council, namely the fixing of prices. Inasmuch as this is done in common session of producers, consumers and workmen employed both in the mines and in other industries, the economic insight of all participants is extraordinarily developed and their vista enlarged from the individual field of each trade to that of the common interest of all. Mutual understanding is promoted and oppositions are alleviated which political strife is apt to enhance.

Coal Mining Institute of America's Biggest Session—II*

Need for More Technical Training—Economical Way to Humidify Air—Will Overdevelopment Be Eventually Corrected and How?—Sawn Versus Hewn Mine Ties—Pressed or Welded Bonds

SIGNIFICANT among the declarations at the meeting of the Coal Mining Institute of America was that of Dr. Yandell Henderson to the effect that with the aid of a mixture of carbon dioxide and oxygen it was possible to bring back to normal condition victims of carbon-monoxide poisoning in 15 to 30 minutes. The patients find themselves inhaling so energetically from the mask that they try to free themselves from it and can be restrained only with difficulty. From a condition of suspended breathing they are in a short time brought into a state in which they breathe so energetically that the exertion is displeasing to them.

The lecturer declared that by compelling the lungs to breathe in more air than is required the air expired becomes so extremely low in its percentage of carbon dioxide that all voluntary breathing ceases. When the will is no longer used to cause the lungs to operate they will cease entirely to function for a few seconds because the animal is stimulated to breathe solely by carbon dioxide irritating the centers of respiration. The condition of suspended breathing is known as apnoea. Some people, however, are not subject to any such total suspension of respiratory activity, being sensitive to such low percentages of dioxide that no depth of respiration or continuance of the effort will so reduce the percentage as to make its action on the respiration centers ineffective.

Victims Recover Without Having Pneumonia

One of the great dangers of asphyxiation is the pneumonia that is likely to follow. One out of every three or five have that disease, sometimes as many as 50 per cent. With the administration of a mixture of oxygen with carbon dioxide, not a case of pneumonia resulted. The new inhalator invented by Dr. Henderson is being made by the Mine Safety Appliances Co., the royalties received going to a fund for the further investigation of resuscitatory methods for asphyxiation.

Mr. Greensfelder asked whether the inhalator would be useful in reviving those overcome by nitrous fumes from explosives. Dr. Henderson said that he believed it would be of value in all kinds of asphyxiation, even from war gases. In reply to Mr. Affelder he said it might be available in all pneumonia cases regardless of the source. Answering Mr. Cooper he declared that it would be useful in cases of ammonia poisoning such as might occur in connection with ice plants at company stores but that it would be unnecessary where the patient was already breathing, as elimination was rapid.

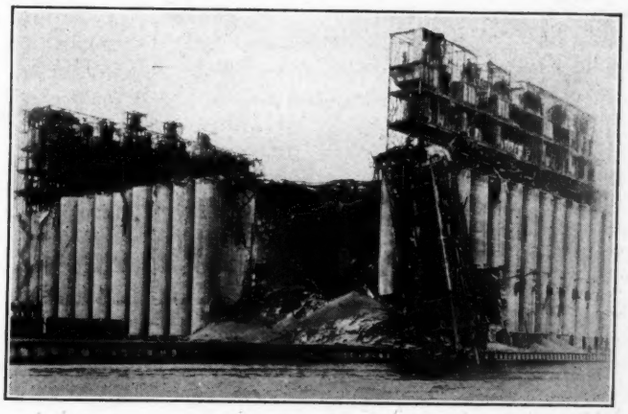
Mr. Maize recalled a case in the Connellsville region where a stable boss complained of severe headache. Several days later a man was found laid out as in a fit in the return airway. He was found to be bleeding. Inspection showed carbon monoxide in his blood. Some time after the discovery of this man gob stink was smelled in the return airways and it was found that the mine was on fire. The fire must have been of long standing but the evidence was wholly in its physiological effects on the men exposed to its influence. There have been seven cases lately in the Connellsville region of such spontaneous gob fires.

Dr. Henderson said the hemorrhage such as this man developed was quite usual in asphyxiation and also that carbon monoxide usually escaped from the blood completely 6 or 8 hours after it has been inhaled. Dr. Henderson added that he had absorbed carbon monoxide till his blood was nearly 50 per cent saturated and Dr. Haggert till over 50 per cent of the blood capacity was absorbed. Dogs had received up to 80 per cent of saturation and been revived. In fact the degree of saturation might be further extended without death, provided oxygen and carbon dioxide in the proportion of 19 to 1 was provided and that the work was done before degeneration of the brain set in. Resuscitation must be done early, however.

College Education Will Be Indispensable

A well-attended banquet at McCreery's Store concluded the sessions of Wednesday. President Rush N. Hosler presided. Jack Armour, humorist from *Coal Age*, made the opening speech, and was followed by Dr. E. A. Holbrook, dean of the School of Mines, Pennsylvania State University, on technical education for mining men. Dr. Holbrook was distinguished by his usual modesty. However, it is to be regretted that the college officials are so modest and such diffident salesmen of the educational idea, for that is one of the reasons why the advantages of education are being only meagerly sought.

How mining men without technical training and stationed where they are largely dependent on their own resources can hope to cope with the problems of the modern electrified mine is difficult to understand. It is safe to say that if men of technical training had been given the proper consideration in the operating depart-



OTHER DUSTS THAN THOSE OF COAL EXPLODE

That it does not take methane to cause an explosion of combustible dusts is shown by the disaster which occurred at this Chicago and Northwestern Grain Elevator, South Chicago, Ill., the world's largest grain storage plant with 10,000,000 bu. capacity. Note how the concrete was shattered by the violence of the sudden blast. The damage done exceeded $4,000,000. All the men in the plant—there were but six—were killed. An illustration from D. J. Price's paper on industrial dusts.

*First part of this article appeared in *Coal Age*, Dec. 21, pp. 997-999.

AN ELECTRIC DUST EXPLOSION IN A GRAIN FIELD

A little while back several explosions occurred in threshing outfits in eastern Washington. Industrial Workers of the World were under suspicion, but the evidence seems to show that static electricity from the belts and a fine highly combustible rust in the grain was the cause. This was snapped by the farmer's son at the very moment when the explosion took place. D. J. Price used this illustration to indicate how sensitive some dusts are to sparks of even static electricity.

ments at coal mines the coal industry would today be as scientifically and as economically administered as the metal mines.

Mr. Holbrook stated that in Great Britain coal mining was taught in seventeen higher-class institutions and in forty-four schools of a secondary rating. He declared that in Pennsylvania there were only three institutions giving a full mining course, yet the output of Pennsylvania was roughly the same as that of Great Britain. He added that seeing the law in favor of the taxation of anthracite had been approved by the Supreme Court it would seem only natural that the state should tax the coal industry to complete the education of those who had to supervise the work of mining throughout the state.

Dr. Holbrook was followed by Douglas Malloch, of Chicago, Ill., who spoke on "Sinners I Have Met," numbering among them the quitter, the pessimist and the grouch. Mr. Malloch is a past master in epigram and kept his audience convulsed with laughter.

Use Natural Heat of Abandoned Workings

At the Thursday morning session, over which Jesse K. Johnston presided, J. W. Paul replied to the question "What is the most efficient method for humidifying mine air?" He stated that the humidification did not in any way reduce the force of an explosion. The air might be 100 per cent humid and yet the explosion would extend with unrestrained violence. Humidification of air was to be recommended only when the air thus saturated was at a higher temperature than the mine and consequently could be relied upon to deposit moisture in the workings. Even then it was of value only if it has been passed through the mine so continuously as to prevent the natural moisture from being evaporated or to add to that moisture.

Consequently in cold weather the air must be heated. That could be done by putting steam into it or by passing it over radiators. A less expensive way was to pass it through abandoned workings, which would raise its temperature to the natural heat of the ground. If steam were then added the humidification would be effected at a low cost. Mr. Paul said that 20 per cent of water would make coal dust safe against ignition but it would require 30 per cent to make propagation impossible.

It was generally felt that air must be saturated by vapor and not merely by the entrained particles of moisture from a spray, however minutely divided. It had been found that only 10 ft. to the leeway of such a spray might be found dust that could be ignited, showing that the air was not really saturated.

In response to a question Mr. Paul said that to render coal dust safe against explosion varying quantities of rock dust were needed. Some would be rendered safe by the use of 40 per cent of rock dust, others required 60 to 70 per cent, the quantity being readily determinable by experiment.

S. A. Taylor was asked to answer question No. 7—"What is the solution for the overdevelopment of the bituminous-coal industry?" Mr. Taylor said that he had estimated for the Garfield administration that the capacity of the bituminous-coal mines was a billion tons annually. Authorities in Washington placed the yearly capacity at 750,000,000 to 900,000,000 tons.

He declared that he did not believe that the production of coal would mount as steadily in the future as in the past, for coal was being better utilized now that central power stations were superseding the isolated plant and water power was displacing steam in the West and in Canada. Coal mines hereafter will be larger. We may look for an end to come to the many small mines that have hitherto been opened along the lines of established railroads. Mr. Taylor said that more and more does it become necessary, if any new mine is to be constructed, to build big plants capable of drawing on the coal land well back under the hills.

He added that several cures for the overdevelopment of mines had been proposed. The miners' union wanted a shorter day and a shorter week. Great Britain had the seven-hour day, but the results were not favorable to the mine workers or the operators. The suggestion of the mine workers, moreover, was not economic. Government ownership of coal land had been advanced as a means of promoting conservation and a deterrent of overdevelopment.

Others had advocated putting the opening of new mines under the control of the Interstate Commerce Commission, the need for new mines being certified in each case by the U. S. Bureau of Mines, but it seemed unconstitutional to favor operating corporations as against those who so far were not working their lands. Mr. Taylor quoted Herbert Hoover as saying that supply and demand would rectify the overdevelopment, and therein seemed to lie the wisest solution.

Don't Make Railroad Pay for Mine Surplus

It would be unfair to the railroads to compel them to meet the peak demands of the mines by unduly large purchases of equipment which would be idle many months in the year. He favored basing freight rates on the engineer's estimate of haulage costs and terminal expense. This would eliminate those mines which were worked only by virtue of freight rates that had been made unduly low for the especial purpose of enabling these mines to enter the market.

G. H. Ashley wanted the date of the wage settlement changed from April to July 1. Now we have a cold-weather peak at the same time as a peak caused by the desire to get coal for storage against a possible strike. Mr. Taylor responded that the busiest time in the Pittsburgh region was in the spring. The Pittsburgh operators would be willing to delay the question of settlement until July 1, but the Middle West, which mines coal mostly for domestic purposes, finds its mar-

ket briskens later when the public begins to stock up for the winter. Consequently the date of settlement has been much debated. The mine workers favor April 1 as the date, because they can find work in the spring which is not available in the winter.

In reply to question No. 4 it was stated that the mines should view the tie question in the same way as the railroads as far as the adzing or sawing of the timber is concerned. It is true that some mine ties are always wet but most of them are like railroad ties—wet occasionally and dry at other times. The railroads have concluded that the adze closes the pores and that the saw opens them up. With the adzed tie also only two sides are smoothed and the pores on the other two sides are in a state of nature. Unfortunately when a tie is not sawn it takes more room in a freight car and is heavy out of proportion to its effective size. Where a tie is sawn it will the more readily absorb preservative. Consequently it is best to use a sawed tie if, for the purpose of prolonging its life, it is to be given a bath or a brush coat.

The ayes had it unanimously in the question, "Are doors necessary in the ventilation of a gaseous mine?" C. P. Byrne, who made the main reply, stated that he had never seen a mine that could be ventilated without doors, and Mr. Ross said that this was particularly true of the anthracite mines.

Pennsylvania Danger Sign in Many States

Question No. 10 had evidently aroused some feeling. It ran, "Would there be any advantages in having a national danger sign for use in American coal mines?" G. H. Dyke in reply said the National Safety Council's universal sign, though carefully selected by experts after due experimentation, did not seem to be coming into general use. He recommended that the Pennsylvania sign for danger be adopted throughout the mines of the United States and that a committee be formed to hasten its adoption. Mr. Maize said that the Pennsylvania sign, a red oval with a black background and "Danger" in white letters, despite all that might be said about the uselessness of a black background in a dark mine with black coal in the rear, was giving satisfactory service. W. G. Duncan said that the use of the danger sign had so far not been enforced in the anthracite region and that the law did not require its enforcement.

W. H. Howarth and Sim Reynolds favored the universal use of the Pennsylvania sign. The general feeling was that someone had some other sign in view for universal adoption, and this caused somewhat general indignation, but Mr. Maize admitted the question was his and he favored the use of the Pennsylvania sign. G. H. Dyke said that the sign which the Pennsylvania Department of Mines had prescribed was selling all over the country including the anthracite region. Its adoption seemed to progress without any formal action.

D. J. Price, engineer in charge of grain-dust explosion investigations of the U. S. Department of Agriculture, in a paper on that subject, which he has made his especial study, said that the inquiries of the U. S. Bureau of Mines furnished the foundation for the researches of the Department of Agriculture into explosions of all kinds of industrial dusts.

In the afternoon G. A. Richardson showed his slides and moving pictures of the Rosedale mine and by-product plant, and A. C. Callen, professor of mining, School of Mines, West Virginia University, Morgantown, W. Va., gave an address on "Methods of Education in Coal Mining." He said that, in Illinois, mining classes were being held in twenty-three towns, in Pennsylvania in twenty-four towns and in West Virginia in thirty-one towns. In West Virginia 1,096 men were enrolled and about 800 attended the classes weekly. The average class contained twenty-five men.

He believed in itinerant instruction. Local instructors might do the work at less cost but they did not attain the same success. Few of them gave the necessary time to the task. Being local men they did not have the respect shown them that was accorded to men from the outside. In fact he would not let any man instruct in the section from which he came for this very reason. The period of instruction lasted over two years.

In many places the superintendent and mine foreman attended and solved their questions on the board with the rest. At one point a district mine inspector made it his practice to attend. The presence of these men was stimulating to the class and really in some degree helpful to themselves, for a little refurbishing of facts and ideas is always well.

After Professor Callen's address, Edward Steidle, supervisor, co-operative mining department, Carnegie Institute of Technology, Pittsburgh, took the chair and Question 11, propounded by D. L. Boyle, was discussed. He wanted to know why all Pennsylvania mines should not be inspected by the Pennsylvania Inspection and Rating Bureau and duly rated, whether they were insured by the state, the stock companies or the mutual companies or were self-insured.

Company's Own Safety Inspectors Preferable

William Patterson declared that the safety inspectors of the coal company's own staff were more careful and more reliable than those of the bureau because they were always on the job and did not have to visit so many mines. As they learned to know intimately the few mines they had to inspect they could more readily detect hazardous conditions such as it was the interest of the employees of insured companies to disguise. Besides, he alleged, the anxiety to get business sometimes made the insuring companies disposed to give a rating that the condition of the mine would not justify.

It was explained that as the law was framed the bureau was not allowed to inspect self-insuring mines. In no case could the rating inspectors order changes in the conditions. It is true that they could raise the insurance rates in accordance with a schedule, but even that they certainly could not do with a self-insuring company.

Question 12 asked, "At drift or slope mines where the coal is 3 or 4 ft. thick are rotary dumps more efficient than crossover dumps?" The answer to the question appeared to indicate that at a mine where the number of cars dumped depended on the capacity of the dump to discharge coal the endgate crossover dump had an advantage over the type of rotary crossover which dumps only one car at a time, but the opinions expressed differed as to the relative merits of the two kinds of dump where in the case of the rotary dump provisions have been made for the dumping of two or more cars concurrently and where in either case the dumping capacity is not the question which is directly at issue.

Question No. 13, "What is the best type of bond in use—pressed or welded—and why?" was answered by

Mr. Bovard. He said that the compressed-terminal bond gave satisfactory results when the track was dry and the temperatures were even. Properly installed this bond gave satisfactory service, but when once it began to fail it deteriorated rapidly. It might serve its purpose excellently for ten, twelve or even fifteen years. On the other hand a bond nearby put in by the same man might show rapid deterioration. The hole must be absolutely clean and therefore must be drilled without lubrication.

Electric Weld Displacing Compressed Terminal

Investigation showed that the electrically welded bond was fast taking the place of the older compressed-terminal bond. Today 64 per cent of the new bonds were welded and only 36 per cent were compressed-terminal bonds. A few years ago the latter bonds were much more popular, the welded bond being comparatively rare. Another member said that the welded bond was either a good bond or a 100-per cent failure.

It was stated that at the meeting of the West Virginia-Kentucky Association of Mine, Mechanical and Electrical Engineers in Huntington, W. Va., several rails with welded bonds were tested and that it was found that the welding crystallized the rail and weakened it, the rail breaking in every case at the point of welding.

Question 14, as to the most effective methods of reducing the present appalling rate of fatalities in coal mines from "falls," brought out the remark that one member got miners to set props by questions about their families and by suggesting that in neglecting safety the men were jeopardizing not only their own lives but the happiness of their wives and children. The thought of leaving them dependents with no one to care for them had more effect than the fear of the miner for his own life. Mr. Maize recommended the invariable use of the center prop.

Relative Value of Near and Far Coal Land

Thursday's meeting closed with a paper read on behalf of Bernard J. Reis on "Depletion, Depreciation and Other Factors Bearing on Cost." He urged that the coal near a mine opening or near a railroad sold at a higher price than coal that was more distant and consequently the whole cost of the area held by the operating company should not be divided by the whole anticipated tonnage of the territory to be operated when the depletion of the value of the property per ton mined was being calculated. The actual value of the coal depleted should be taken and no other. Otherwise too large a depletion would be charged at a later period and profits would be declared at first which would be excessive and would represent not operating profit but profit plus a certain part of the original capital.

No less engrossing than the meetings was the inspection trip on the last day of the annual session. Those who were able to stay over were well repaid for their tarrying, the objective, the Springdale mine and central station of the West Penn Power Co., offering much of an instructive nature.

At least seventy-five men automobiled from Pittsburgh to Springdale, Pa. The morning was spent looking through the central station. Divided into manageable groups, the visitors were familiarized with the power-generating operations and power distribution in the tri-state system. A boiler unit to burn pulverized coal, now being erected, attracted considerable attention.

The party then motored to New Kensington, Pa., where lunch was served. On their return to Springdale the men congregated in the main hoist house, where they were furnished with slickers, storm hats and safety lamps for their trip through the tunnels under the Allegheny River. Descending the stairway in the main shaft, an inspection was made of the big bottom with its rotary dump and skip-hoist arrangements.

A trip of ten all-steel 3½ ton mine cars such as are used in the Springdale mine carried the visitors through the river tunnels, during the course of which they were told of the difficulties encountered in solving the problems of the subaqueous construction. Arriving underground on the Logan's Ferry side of the mine the members were conducted to the airshaft, which elicited deep interest because of its huge proportions and its four-way split passages at the bottom. A well constructed first-aid room and a recently completed pump station with a 3,000,000-gallon sump offered suggestions aplenty. An ascent of the manway of the double-decked slope brought the men to the surface on the opposite shore of the river from the power station.

Safety Provisions Not Neglected at Mine

Here the slope hoist room, the substation, and the fan house were visited. An inspection of the orderly and well-lighted supply room and machine shop occupied some time. Here also a demonstration was made in a smoke chamber of the use of the carbon-monoxide gas mask.

Filing down the slope again the visitors walked to the east section of the mine and inspected the coal faces and other conditions on the main east entries. Few companies have adopted safety precautions on so large a scale as this one and the visitors did not fail to note these. Among them were large clean airways, electric lamps on the manways, crossover bridges over the haulage tracks, well-guarded trolley crossovers and a liberal application of whitewash on roadways.

A return to the Springdale side through the river tunnels in mine cars and a climb up the stairs brought the men to the surface and the convention to a close.

THE EFFECTIVENESS OF THE STEPS taken by the administration during the coal strike, looking to the prevention of a runaway market and an equitable distribution of coal supplies may be judged best, Secretary Hoover points out, by the fact that no acute hardship has followed the long period during which many mines were closed and by comparing the average prices that have prevailed since the strike with those that prevailed during the corresponding period following the strike in 1920. He emphasized, however, that domestic consumers will have themselves to blame if they do not provide substitutes for anthracite. There is not enough anthracite to go around and this condition must be recognized instead of relying on someone else to do the substituting.

UTILIZING THE SERVICES OF 194 RAILROAD CARS the United States Coal & Coke Co.'s mine at Lynch, Ky., on Dec. 5 loaded 10,573 tons in nine hours, the greatest output in its history. All this coal passed over one tipple and is derived from two openings. E. V. Albert is the general superintendent.

Problems of Operating Men

Edited by James T. Beard

Driving Wide Rooms a Factor in Maximum Unit Production of Coal

Conditions Affecting Maximum Unit Production—Necessity for Freedom of Movement in Mining—Requirements in Driving Wide Places—Objections to the Same

IN HIS letter, *Coal Age*, Oct. 26, p. 676, L. F. Klinginsmith requests a discussion of what influence, if any, the width of rooms has on the possible daily output, per man. In response to this request, I would like to offer the following remarks as being pertinent to that question.

The correspondent appears to be of the opinion that a wide room, or working place, will tend to produce a maximum tonnage, per man. In that connection, allow me to suggest that, aside from the prowess of the miner, the production of a maximum daily tonnage is largely dependent on certain physical conditions in the seam and the extent to which these are considered in the working out of the coal.

Miner Must Have Room to Work to Develop Full Capacity

In the first place, it is very essential that the miner should have freedom of movement. For instance, the place must be of sufficient width and arranged in a manner not to impede the loading of the coal. In this respect, it must be remembered that the width of the room is not necessarily the dominant factor.

For example, a 10-ft. entry if unobstructed may afford greater freedom of movement than a 20-ft. room where the roof conditions require the setting of posts so close together and near to the face of the coal as to provide little room for the miner to work.

On the other hand, where the conditions of roof and floor permit the driving of wide rooms, a single mining across the face of the room will produce a correspondingly larger tonnage and less time will be lost in the mining of the coal or in waiting for the machines to cut the face.

Wide Openings Assist Breaking Action of Roof

Again, the cantilever action of the roof is more effective in breaking down the coal, where the width of the opening is such as to throw the pressure on the face of the coal. A greater width of coal face will also greatly facilitate the setting and loading of more cars at one time than is possible in a narrow place.

In respect to expediting the loading of coal in a working place, a most important matter is the arrangement of the track in the room. Where proper attention has not been given to this arrangement, the result will be to largely offset any advantage that might be gained in working a wide breast of coal.

Location of Track Important

The distance the miner must handle his coal along the face will largely determine his speed of loading. For this reason, conditions permitting, laying the track in the center of a wide room is a decided advantage over laying a track along the straight rib; but this must always involve the question of relative cost of the upkeep of the road, in the two cases.

Conditions may enable the driving of double rooms in which a track is laid along each rib. This will prove a distinct advantage in drawing back wide pillars. Briefly summarized, the driving of wide places, consistent with the prevailing conditions, favors a maximum production of coal, per man, by yielding a larger tonnage, per cut, and expediting the loading of the coal, where proper attention is paid to the arrangement of the tracks in the rooms.

Precautions to Be Taken When Driving Wide Rooms

Personally, I do not advocate the driving of rooms of a greater width than the local conditions and facilities of loading will permit. With wide rooms and proportionately large pillars, there is not the sustaining resistance to roof pressure as with a larger number of pillars of a size suitable to the conditions.

Under the conditions named by this correspondent, however, the driving of wide rooms will require the exercise of the greatest care in maintaining uniform pillars. Lack of uniformity, size of pillars and the manner in which they are drawn back will result in an uneven distribution of roof pressure and create a disposition or tendency to creep.

The chief objection to wide rooms, driven under any roof conditions, will be found to be the danger of trouble in the later extraction of the pillars. In my judgment, the driving of rooms, from 36 to 40 ft. in width, with pillars of proportionate distance, is apt to develop a dangerous condition when drawing back the pillars.

Owing to the large area of extraction, not only is there greater danger to the miners robbing the pillars; but there is every possibility of a cave extending back into the rooms a considerable distance beyond the breakline. If this does occur there is sure to result a total loss of large quantities of coal and material.

When the First Break Occurs

In the present instance, the coal being overlaid with a sandrock roof, it is probable that the initial break will only take place after a considerable area of pillar extraction is accomplished. The resulting heavy fall of roof may raise large volumes of inflammable dust, with every prospect of a disastrous explosion taking place.

In any event, the cantilever action of the roof, increased by the extended area of extraction, cannot fail to have a destructive influence on the pillars and stumps yet remaining, to which I have previously alluded.

Taking these conditions into account, I consider it always injudicious to sacrifice future production to a temporary maximum output. This should be made subservient to economic production and development. It should be the aim to maintain a sufficient number of working places that will not compel the men to be crowded together so that they cannot work to the best advantage, and develop the highest productive capacity of the individual. Lastly, it is of the utmost importance to arrange the schedule for the cutting of the coal in a manner that will insure no delay in its loading. There must also be an adequate supply of cars in each place.

Washington, D. C. I. C. PARFITT.

Practical Safety-Lamp Test

Lamp to be surrounded and filled with explosive mixture—Hung in a closed box—Carbide and water used to generate gas.

READING the short letter of a Pennsylvania fireboss, *Coal Age*, Nov. 9, p. 760, in which he describes his method of testing a safety-lamp by means of a carbide lamp brought in proximity to the gauze of the safety, I am prompted to give the following practical test of a safety-lamp, by using carbide for that purpose.

When a fireboss desires to make a thorough test of a safety-lamp, the explosive mixture should completely surround and fill the lamp. For this reason, it appears to me that the test described in the letter to which I have referred is not an adequate test.

In order to accomplish this, there should be provided an airtight box 1 ft. square in section and 2 ft. high. Make one side of the box a glass door, fastened shut with a frail catch that will be readily released in case an explosion occurs in the box.

In the top of the box, arrange a slide door of such a size as to furnish an opening of about 4 sq.in. The purpose of this opening is to permit of the escape of any surplus gas and so regulate the condition within the box, as desired. Also, place a screw hook in the ceiling, within the box, on which to hang the lamp to be tested.

TESTING WITH ACETYLENE GAS

Having prepared the lamp for making the test, light the wick and hang the lighted lamp on the hook within the box. Place a small vessel, such as a blasting-cap box, beneath the hanging lamp. Put as much carbide into this vessel as will fill the palm of the hand and add a small amount of water to generate acetylene gas.

Now, close the door of the box and observe closely the action of the gas on the flame of the lamp within. Should the gas be generated too freely and threaten the extinction of the lamp, open the slide in the top of the box to permit some of the gas to escape.

If an explosion takes place within the lamp and does not ignite the surrounding gas, it is safe to assume that the lamp can be taken into the mine without danger of accident by reason of any deficiency in the lamp. This means of testing safety lamps is in common use, in all the gaseous mines of southern Colorado. It is also employed by some teachers of mining classes, in order to show the action of an approved safety lamp in an explosive mixture.

PENNSYLVANIA MINE FOREMAN.
——, Colo.

Safety in Coal Mining

Is safety in mining to be found by study—Disasters continue in spite of our increased knowledge—Duty of mine operators to eliminate known dangers—Gas and dust chief elements of danger.

ff OR several years past, much has ff been said and written in regard to keeping the mine safe. During the same time, many things have been done to insure greater protection for life and property in coal mining. Still, as shown by recent occurrences, mine disasters resulting in the destruction of life and property have not passed into history.

As long as the question of safety in mining is being studied by intelligent miners, new and more efficient means of protection of life in mines will be found. Nevertheless, we cannot refrain from asking the question, Will some means or system that will insure safe mining ever be found through study and investigation?

MINE DISASTERS CONTINUE THOUGH KNOWLEDGE HAS INCREASED

Notwithstanding the rapid increase ln the knowledge of mining conditions, brought about through our study and investigation, the past month or six weeks have recorded many fatal mine disasters, both in this country and elsewhere. It is appalling when we stop to think of the number of lives that have been sacrified in these dread happenings.

Many of the disasters can be traced to the careless act of some ignorant or thoughtless miner, while others must be charged to the disregard and indifference of certain mine officials to safety rules and regulations. Operators must not cease their efforts to eliminate all known sources of danger and see to it that safety rules and regulations are strictly enforced, with suitable penalties.

INCOMPETENT OFFICIALS OFTEN TAKE UNWARRANTED RISKS

It is with deep regret that we acknowledge a goodly number of our coal operators, though well meaning men, know very little regarding their underground operations. The most of these operators employ careless and incompetent officials, with the result that an explosion or other mine disaster follows. Many are in the mining business for the purpose of making all the money possible.

This latter class of operators are often willing to assume unwarranted risks and require to be carefully watched if their mines are to be operated in a safe manner. If the safekeeping of mines was a matter of heavy penalty for the violation of mining laws and safety regulations, we would soon have better mines and fewer disasters.

We often hear the question asked, "What are the chief dangers to be guarded against in coal mines and how can this be done?" The two chief elements of danger involved in the mining of coal are gas and dust. These must be guarded against in the operation of all mines. In respect to gas, adequate ventilation of the workings is the most effective means to employ. In the matter of dust, its removal and the humidifying of the mine air are the remedies.

MAINTAIN GOOD CIRCULATION

In his article, "Keeping the Mine Safe," *Coal Age*, Nov. 2, p. 719, Oscar H. Jones says: "One of the chief factors in mine safety is maintaining a good circulation of air throughout the workings." With this statement, I heartily agree. It hits the nail squarely on the head.

No mine can be considered safe or sanitary without a sufficient supply of fresh air at all times. A large volume of air circulated at a low velocity and made to sweep the working faces is a great safeguard of life in mining. All abandoned places where gas is wont to accumulate should be required, by law, to be kept well ventilated or substantially sealed with stone or concrete.

Good ventilation is the key to safeguarding the mine against gas. Dust is the dangerous element met with in all dry mines, the degree of danger varying with the inflammability and fineness of the dust. In my judgment, the dust danger is the most difficult one with which miners must deal and requires constant attention. Unlike gas, the danger from dust is increased by an abundant supply of fresh air.

SPRINKLING OR SPRAYING INADEQUATE

Again, quoting from Mr. Jones' letter to which I have referred, we find the statement: "In my opinion, no spraying system is thoroughly effective." Continuing, he does not believe that watering the dust renders it inexplosive or increases the safety of the mine. He regards the humidifying of the mine air and the broadcasting of salt more effective means of overcoming the dust evil.

In these respects, the correspondent has again clearly stated my own convictions regarding the dust evil. After a long experience in sprinkling dusty mines, and the use of spraying systems for laying the dust on mine roads, I have lost faith in the effectiveness of these means of overcoming the danger. Where there is much dust make the roads as wet as you may, today, and tomorrow they are dry again.

The most effective way of dealing with the dust question, in coal mines, is to reduce to a minimum the means for making dust. Permit no accumulations of fine coal at the working face. Load out all fines and coal cuttings in dustproof cars. Forbid the loading of cars with topping, and keep all haulage roads and travelingways clear. In addition to these precautions, humidify the intake current with steam.

Like Mr. Jones, I believe that, in all mines where the coal is hard and dry, blasting should be done with permissible explosives only and all holes should be tamped with clay. Preferably, experienced shotfirers should be employed to examine, charge and fire all shots after the men have left the mine.

JOHN ROSE.
Dayton, Tenn.

Determining Fault of Dislocation

Normal and reverse faults—Ends of strata bent to show direction of the throw—Common rule is to follow the greater angle.

IT WAS with much interest that I read the letter of I. C. Parfitt, *Coal Age*, Nov. 16, p. 799, entitled, "Locating the Coal Beyond a Fault." The writer dwelt particularly on the direction in which the ends of the strata were bent at the point where the slip occurred.

The subject ought to be of deep interest to everyone in charge of coal-mining work. In my own experience, I have gone through many faults. At

times, it was necessary to drive long entries or slopes to connect with the continuation of the seam when that had been found.

Lack of Geological Knowledge

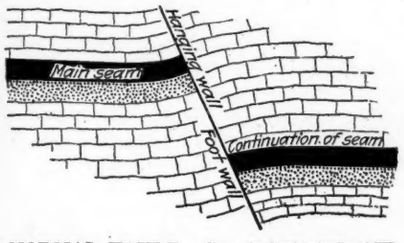
Owing to the lack of knowledge on the part of mine foremen and other officials, regarding the nature of faults and the means to be adopted to locate the seam beyond, there is often incurred much needless expense when an entry strikes a fault. In the majority of cases, there is much guessing as to the direction in which the strata has slipped.

Drillholes are often put up in the roof and down in the floor; or, perhaps, the heading is driven a considerable distance in the rock, in a fruitless endeavor to locate the continuance of the seam. It is needless to say that these efforts are largely without any intelligent direction and generally end in failure.

Causes Producing Reverse and Normal Faults

In the figure presented by Mr. Parfitt, there is shown what is termed a "reverse fault," which is evidently the result of contraction in the formation. The two sections of the strata were apparently forced together, until rupture took place and one portion then slipped under the other.

Such faults are not common. While I have heard of them, none has ever



NORMAL FAULT AS A DOWNTHROW

occurred in my practice. What I would term a "normal" fault is one where the strata were pulled apart by a force of extension till rupture occurred with the result shown in the accompanying figure. In this type of fault, it is clear that no drillholes, whether put up in the roof or down in the floor, would avail to find the coal. What I have to say, here, has reference to this more common type of normal fault.

Practical Rules for Finding the Coal Beyond a Fault

There are two general indications that intelligent miners seek when approaching a fault. One of these has been referred to by Mr. Parfitt; namely, the bending upward or downward of the ends of the strata at the fault line. It is my experience that the coal rises when the fault is a downthrow; and dips when the fault is an upthrow. This characteristic of a normal fault is shown somewhat exaggerated in the figure.

A practical rule that I have found has never failed to get the coal, is to follow the greater angle between the floor of the seam and the line of fault. This rule, of course, would not apply to a reverse fault, where it would be necessary to follow the lesser angle to get the coal beyond the fault line.

In reference to the bending of the ends of the strata, in a faulted seam, it will sometimes happen that metamorphic action has destroyed these marks and rendered the cleavages practically indescernible. It will be interesting to learn the experience of others regarding these indications.

Linton, Ind. W. H. Luxton.

Inquiries Of General Interest

Method of Humidifying Mine with Steam When Ventilated by Exhaust Fan

Use of Steam in Exhaust System of Ventilation—Changes Required to Avoid Annoyance on Haulage Roads—Heating Intake Air Before it Enters the Haulway

AT THIS season of the year, the subject of humidifying mines is one of absorbing interest. Recently. this interest has been much increased by reason of the numerous reports of mine disasters that have occurred in different localities where coal is being mined.

Mine explosions reported within the past two months have occurred in widely distributed parts, the territory covered extending from Vancouver Island in the northwest, to Alabama and including England. This wide distribution of mine catastrophes, in connection with repeated volcanic eruptions and destructive earthquakes during the same period, awakens renewed interest in the possible connection of seismic disturbances and gas in mines.

However this may be and whatever may have been the causes of the ignition of gas and dust that created these recent disasters, it behooves all coal miners and operators to exercise every precaution and seek to avoid danger by reducing, as far as practicable, explosive conditions in the mines. With this end in view, I am constrained to ask *Coal Age* and its readers for suggestions regarding the application of steam to humidify mines ventilated on the exhaust system.

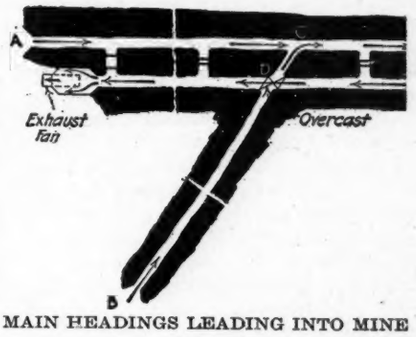
In an excellent article that appeared some time since in *Coal Age* (Aug. 3, p. 169), the use of steam for this purpose was fully explained. Its application in that instance, however, clearly related to mines ventilated by the blowing system, which lends itself readily to the introduction of steam in the intake airway.

In the exhaust system of ventilation, on the other hand, the conditions are different, requiring the main haulage road to be made the intake airway for the mine. In that case, whether the mine is opened by a drift, slope or shaft, it is evident that the introduction of steam in the intake current would greatly hinder the haulage operations and prove a decided annoyance to workmen on that road.

The question I would like to ask is: Under these conditions, how is it practicable to humidify a mine ventilated on the exhaust system? There are hundreds of mines ventilated in this manner and a practical answer to this question will be greatly appreciated by many, at this time.

———, Ky. Superintendent.

In presenting his case, this correspondent has brought forward a matter of much importance in reference to humidifying mine air under varying conditions. As he has stated, the blowing system of ventilation is ideal for the application of steam for the purpose mentioned, since the main haulage roads



MAIN HEADINGS LEADING INTO MINE

are then the return airways of the mine and the introduction of steam in the intake does not interfere with hauling the coal.

Perhaps, the best answer that can be given to this question is to cite an instance of an exhaust mine that was, with slight alteration or change, adapted to the introduction of steam for humidifying the mine, without hindrance to the operations of haulage and handling of cars at the mine entrance.

Although the instance about to be given relates to a drift mine, the arrangements shown in the accompanying figure will apply equally well to a slope or a shaft bottom, as far as the effect in the mine is concerned. In the case illustrated in the figure, the powerhouse was located at one side of the drift mouth, or mine entrance *A*. The dis-

tance *AC*, on the main haulage road leading into the mine, measured about 100 yards.

When it was decided to use the exhaust steam of the powerhouse to humidify the mine air, the plan adopted was to drive a second drift, starting from the point *B*, near the powerhouse, and intersecting the main haulage road at *C*, passing over the main return air-course, at *D*, where a strong air bridge was built in the roof of the air-course. The distance *DC* was practically 300 yd. or more.

This gave ample opportunity for installing the necessary radiators, or steam coils, for heating the intake air. A short distance beyond the steam coils there were erected baffle curtains of canvas, after the manner described by Charles M. Schloss, in his letter, Sept. 28, p. 497, as being the method used by the Colorado Fuel & Iron Co., in many of their mines.

It is important to understand that the heating of the entering air, as it passes over the steam coils, greatly increases its capacity for absorbing moisture. The air current is thus enabled to completely absorb the steam as it issues from the ends of the pipes and strikes against the baffle curtains hung in the airway.

Therefore, after passing these curtains, the air current presents a dry but saturated condition, at a moderately high temperature. By the time it has reached the main haulage road at *C*, and mixed with the cooler air entering the mine at A, it begins to deposit its moisture as the temperature falls.

When this arrangement is carefully followed, there is no appreciable fog formed on the haulage road that would inconvenience the drivers and other workmen. We shall be glad to have the question of practical humidification of mines, in the exhaust system of ventilation, further discussed, giving results actually obtained as to temperature and percentage of moisture at different points in the mine and the effect in overcoming the dust evil prevailing in coal mines.

Examination Questions Answered

Miscellaneous Examination Questions

(Answered by Request)

QUESTION—*(a) In a mine liberating explosive gas in dangerous quantities, where should the stone-dust barriers or shelves be located to prevent an explosion from propagating throughout the mine? (b) Do you think this is necessary in addition to humidifying the mine air?*

ANSWER—(a) It has been recommended that in mines subject to coal-dust explosions, there should be provided stone-dust zones, at points in the airways and on the roads in proximity to the live workings. Two or more such zones are formed in each airway or road, by erecting shelves for short distances along the ribs and in the roof above the passageway. In the event of an explosion occurring in the workings, the stone dust placed on these shelves is blown into the air by the blast. The effect is to reduce or destroy the explosibility of the coal dust, which otherwise feeds and propagates the explosion.

(b) Where conditions in a mine render the occurrence of a dust explosion liable, it is well to employ every means possible to reduce the danger. Humidifying the air current passing into a mine tends to prevent the explosion of the dust, by keeping it from being thrown into the air where it may be ignited by the flame of a shot or that of a local gas explosion. On the other hand, stone dusting tends to prevent the propagation of a dust explosion when it has once been started in the workings of a dusty mine.

QUESTION—*(a) If the velocity of an air current is 700 ft. per min. and the size of the airway is 11 x 6 ft., what is the volume of air passing? (b) Show the perimeter and give the rubbing surface, the entry being 2,700 ft. long.*

ANSWER—(a) The sectional area of this airway is $6\times11=66$ sq. ft. The volume of air passing, at a velocity of 700 ft. per min., is $700\times66=46{,}200$ cu.ft. per minute.

(b) The perimeter of this airway is $2(6+11)=34$ ft. The rubbing surface of the airway is then found by multiplying the perimeter by the length of the airway; thus, $34\times2{,}700=91{,}800$ square feet.

QUESTION—*State the different methods of timbering bad roof and soft bottom, and hard top and soft bottom.*

ANSWER—When the roof is bad and the bottom soft, it is necessary to use good cap-pieces above the posts, for the better support of the roof. Also, each post must be set on a good footboard so as to distribute the pressure more evenly and prevent the post from sinking into the soft bottom. Where the top is hard and the bottom soft, good footboards only may be needed.

QUESTION—*(a) Give the essential requirements for a well ventilated mine. (b) Why is it necessary to take measurements of air at certain intervals throughout the mine?*

ANSWER—(a) In a well ventilated mine, the volume of air entering the mine must be sufficient to comply with the requirements of the mining law of the state where the mine is located. In addition to this, the quality of the air and the velocity of the current at the working face must be sufficient to make the place safe and healthy for work. Simple compliance with the requirements of the mining law does not necessarily insure good ventilation, which depends primarily on the quality and velocity of the air at the working face. In every case, the condition must be such as to render all places healthy and safe for work.

(b) Air measurements should be taken at intervals throughout the mine, in order to determine any losses that may occur by reason of leaky doors and stoppings, so that these can be repaired and the entire volume of air made to sweep the working faces throughout the mine.

QUESTION—*(a) What elements determine the ventilating pressure? (b) What determines the air resistance and how is it measured? (c) What is a booster fan? Do you consider a booster fan practicable? Give reason for your answer.*

ANSWER—(a) The ventilating pressure, or the pressure producing circulation in the mine, is determined by the mine resistance.

(b) Resistance to the flow of air in a mine is determined primarily by the extent of rubbing surface and the velocity of the air current. In addition to these elements, the resistance is greatly modified by the amount of obstruction to the free passage of the air, owing to roof falls, contracted breakthroughs, or other hindrances in the airway.

Mine resistance is measured by observing the reading of the water gage, in the fan drift or at the shaft bottom. The water-gage reading, in inches, multiplied by 5.2 and that product again multiplied by the sectional area of the airway, in square feet, will give the mine resistance, in pounds.

(c) A booster fan is a small fan installed at some point in the airway of a mine, for the purpose of improving the ventilation in a given section of the workings. A booster fan is generally operated by an electric motor.

The use of a booster fan is never practicable if employed as a unit of the permanent circulation in a mine. Its use is limited to improving the circulation, temporarily, in a section of a mine, about to be abandoned and where the conditions do not warrant incurring any unnecessary expense for ventilation.

The reason why a booster is not a practical means for increasing the circulation in a mine, permanently, is because the location of the booster requires its constant watching to prevent accident resulting from possible failure in its operation. Also, the location of such a fan renders it unavailable in case of accident occurring making it important to restore the circulation before entering that section.

"Better Settle for Year at Present Wages on Four-State Basis," Big Western Operators Now Say

Big coal operators of the Middle West are reaching a new decision about what ought to happen April 1. Opinion is fast crystallizing in favor of making a settlement with the union miners at the present scale to run one year. The fact that John A. Donaldson, of Pittsburgh, Pa., one of the chief opponents in the recent Chicago meetings of re-establishment of the old four-state plan of scale making, is reported to have changed front and now favors the four-state plan is an important factor. It is important also that the central Pennsylvania operators are reported to be willing at last that this should be done. Thus, is spite of what the horde of small operators and the outlying districts may think, the situation is shaping up for a quick decision by operators and miners at the Jan. 3 scale conference at Chicago in favor of negotiating a one-year, four-state contract at present high wages, serious though the consequences may be to smaller and weaker coal producers in face of the probable poor market next year.

The one-year plan is said to have been approved by the miners, who feel so secure in their strength to whip the operators under any conditions at any time that they would just as soon put off the finish fight—if there is to be one—until April, 1924. There has been no official decaration on this point from Indianapolis, of course, but the word has passed around that John L. Lewis will agree to the one-year contract provided no reduction in wages is insisted upon.

Four of the principal operators whose headquarters are in Chicago agreed during the past week that they have concluded that a settlement with the union April 1 is essential. A strike, they say, will inevitably bring down some sort of government control through the agency of the Federal Coal Commission, and neither miners nor operators desire that. If settlement is made for one year, then time will have been allowed for the commission to do its utmost for the industry. At the end of the year, with the commission's work done, the deplorable labor situation in the industry may have been changed somehow so that the balance of power may not lie so completely in the hands of the union. Possibly other corrections of the industry's ills will have been made. In any case the spring of 1924, with no Federal Coal Commission in existence, is now looked upon by the large Western operators as a better time for a finish fight with the union than April, 1923.

It is prophesied freely enough that a continuance for another year of the present wage scale would simply spell ruin for hundreds of operating companies the country over. But the defence of those who would avoid a strike is that the public is in no mood to stand for another conflict between operators and union. Further, they say, it seems evident that official Washington favors a settlement even at the present scale. If it is made, the larger operators say they will feel that they have shown their entire willingness to do their bit for the general good of the country. That is, they think they will have bowed to what they consider to be the will of the people, foolishly conceived though that will may be.

The indications now are that on Jan. 3 when the subcommittee of two miners and two operators from each of the fifteen union districts get together for a last-minute effort to frame up a negotiations plan before the main scale conference convenes that same day, a hasty recommendation will be written favoring four-state negotiations. This is the subcommittee which spent more than a week in two Chicago sessions, Nov. 14 and Dec. 6, without reaching any conclusion. But whatever this subcommittee may do, it now appears likely that the main conference will set up the Central Competitive Field once more and that a settlement with the union will be made.

Case In Against First Herrin Defendants; Defence Begins Three Weeks' Grind

The state's full case against the first five prisoners in the Herrin massacre trial at Marion, Ill., is now in and the defense put a few witnesses on the stand just before adjournment until Jan. 2. No important new angles have been introduced. The state's witnesses presented more evidence supporting the direct charges of murder against all five prisoners, the witnesses reciting further details of brutality toward Howard Hoffman and C. K. McDowell previous to the killing of those two non-union members of the Lester strip mine's force on the day last June when the mine was besieged and 21 of the defenders killed and wounded after the whole force had surrendered. It was plainly shown by the testimony of first defence witnesses and by public statements by attorneys for the miners' union in charge of the case that "justifiable homicide" is to be the grounds of defence.

The defence put on its first witnesses on Friday, Dec. 22. John D. Conroy, farmer, union miner and contributor to the defence fund, whose farm is near the mine, told of being warned one evening about June 15 by an armed man on the road near his house not to "be around there after sunset or before sunrise." On the 21st he said he was fired upon from the mine as he went along the road, whereupon he ran into the farmhouse cellar with the rest of the family for protection. The next morning more shots were fired at him as he went out to the pasture after the stock. Conroy's father, mother and sister all told of the firing on the farm and of the killing of a colt. The elder Conroy, under cross-examination, could not be sure that the bullets were not overshot by mine attackers on the opposite side of the pit.

Ed Crenshaw, farmer and ertswhile miner, whose farm is near the strip pit, told of seeing Geordie Henderson, union miner, shot as Henderson lay on the ground 100 ft. from Crenshaw. He wasn't sure whether Henderson was armed or had been firing at the mine at the time. "Uncle Tink" Donahue, aged "character," whose farm is near the strip mine, testified that the guards closed a road he had been using as a public highway for 40 years. Walter Faroy, highway commissioner of West Marion, said the road had been maintained with public funds. Oscar Dangbar and his aged father, George Dangbar, miners and farmers near the mine, told of bullets flying around the Crenshaw house.

Over the Christmas holiday prisoners and jurors were guarded in the county jail. Judge Hartwell warned witnesses to be ready promptly when court convenes Jan. 2. It is probable it will take the defence three more weeks to get its entire case in.

Howat Ticket May Have Won in Kansas

Results of the election, Dec. 12, of officers in District 14, United Mine Workers of America, one-time Howat domain, are still in doubt pending finishing of the recount. Early reports were that the Howat slate, headed by William Bogartz, candidate for president, was in the lead. The day after the election, however, Ora Gassaway, member of the International Board, United Mine Workers, and of the special election committee in charge of the election in District 14, declared there was little doubt Joe Clark, heading the Lewis faction, would win.

I. C. C. Issues Service Order 31

To insure adequate supplies of coal for the Government Fuel Yards at Washington, the Interstate Commerce Commission has issued Service Order No. 31, instructing the Pennsylvania R.R. to assign three cars per day for fifteen consecutive working days to the mine of the Commercial Coal Mining Co. at Twin Rocks, Pa.

Senator Walsh Urges Seizure of Coal; Michigan Seeks Canadian Embargo

Senator Walsh, of Massachusetts, advised state officers to commandeer and distribute coal necessary to prevent suffering, in a statement sent to his constituents and made public Dec. 25.

Prompted by reports of distress caused by coal shortage in New England, Senator Walsh, who said he had received many letters on the subject, took the unusual course of sending a circular letter to his constituents reciting his efforts to prevent a fuel famine.

"I tried to secure action of our government," he declared. "at a time when action could have been taken with advantageous results."

"Last summer," he added, "was the time to have compelled the necessary production and distribution of coal. The only immediate relief I can suggest now is for the respective state governments to commandeer whatever coal is obtainable and apportion it equitably and at bare cost of production and distribution."

In the effort to obtain a more liberal supply of anthracite for Michigan and Detroit, Charles F. Dunn, Wayne County Fuel Adiministrator, is directing the attention of Representative Vincent M. Brennan to various features of the situation. Representative Brennan, it is said, will make use of the information in urging congressional action placing an embargo on shipments of anthracite to Canada.

Mr. Dunn informs the congressman that between Sept. 10 and Nov. 24 shipments of hard coal into Canada amounted to 10,100 cars, or 404,607 gross tons, while in the same interval Michigan received 3,947 cars, or 157,871 gross tons. It is pointed out also that the figures for Canada do not include shipments over the Delaware & Hudson, which is reported to have handled a considerable tonnage for Montreal, nor the shipments carried out of Buffalo on lake steamers for delivery in Canada.

The fact that the railroads receive a freight rate of 32c. more per gross ton on shipments into Canada than the rate to Detroit and Michigan is suggested as one of the reasons for the apparent discriminatory diversion of anthracite into Canada.

Mines Bureau Fares Well in Appropriations

The Bureau of Mines fared particularly well at the hands of the appropriations committee of the House of Representatives. The only cut made in its budget was the lopping off of $10,000 from the amount requested for the investigation of mineral fuels. In that case the bill reported to the House carries $136,000 instead of $146,000. On the other hand, however, an increase of $80,000 was allowed for the supervision of petroleum leases on the public domain and $45,000 for enforcing the provisions of the leasing act with regard to coal, phosphates, sodium and potassium.

In the case of the Geological Survey the total carried in the budget was reduced by $136,400. The appropriations committee reported $225,000 for land-classification work, a reduction of $75,000. An additional $9,500 was lopped off of the amount requested for stream gaging, and $51,900 was subtracted from the amount desired for geologic surveys.

Only Four Companies Bid on Coal Supply For Navy Yards and Naval Stations

Only four companies submitted bids Dec. 19 to the Bureau of Supplies and Accounts, Navy Department, for bituminous or semi-bituminous coal for navy yards and naval stations. Only four items were the subject of more than one bid, and on two items—covering 14,000 tons for delivery at Norfolk, Va., and 400 tons for delivery at Lee Hall, Va.—no bids at all were received.

In addition to the four bids considered at the opening, an informal proposal, which was not accepted for consideration, was received from the Matlack Coal & Iron Co.

The bids received were as follows:

Empire Coal Mining Co., Philadelphia, 300 tons, for delivery at Hingham, Mass., $9.35 per ton; 900 tons, for delivery at Iona Island, N. Y., $7.98 per ton; 8,500 tons, for delivery at Lakehurst, N. J., $8.23 per ton.

Iron Trade Products Co., Pittsburgh, 300 tons, for delivery at Hingham, Mass., $8.44 per ton; 25,000 tons, for delivery at Brooklyn, $7.06 per ton, delivered at coaling plant, or $6.76, delivered into navy barges; 5,400 tons, for delivery at South Brooklyn, N. Y., $7.39 per ton, delivered in cars, or $6.76 per ton, delivered into navy barges; 900 tons, for delivery at Iona Island, N. Y., $7.15 per ton; 1,200 tons, for delivery at Lake Denmark, N. J., $8.04 per ton; 8,500 tons, for delivery at Lakehurst, N. J., $7.39 per ton; 25,500 tons, for delivery at Washington, D. C., $6.76 per ton; 500 tons, for delivery in the District of Columbia, $6.76 per ton; 400 tons, for delivery at Alexandria, Va., $6.76 per ton; 10,500 tons, for delivery at White Plains, Md., $7.34 per ton; 13,800 tons, for delivery at Annapolis, Md., $9.42 per ton, for barge delivery, or $9.07 per ton, delivered by rail.

Quaker City Coal & Coke Co., Philadelphia, 8,500 tons, for delivery at Lakehurst, N. J., $7.11 per ton.

L. A. Snead, Washington, D. C., 400 tons, for delivery at Alexandria, Va., $8.50 per ton; 17,900 tons, for delivery at Sewalls Point, Va., $8.24 per ton; 3,400 tons, for delivery at Norfolk, $8.25 per ton; 4,000 tons, for delivery at Charleston, S. C., $8.64 per ton.

Beehive Coke Output in 1921, 5,538,042 Tons, Lowest Since 1885

Beehive coke production in 1921 was 5,538,042 net tons, the smallest record since 1885 and 73 per cent less than in 1920, according to the U. S. Geological Survey.

Byproduct coke continued to supersede the beehive-oven variety, for of the 25,287,22 tons of coke produced in 1921—both beehive and byproduct—but 22 per cent of the total came from beehive ovens against 40 per cent in 1920.

The principal facts concerning the beehive coke industry are revealed in the following tables:

TABLE I—BEEHIVE COKE INDUSTRY IN THE UNITED STATES IN 1921*

Beehive ovens:	
In existence Dec. 31, 1921	66,014
New ovens completed during year	0
Under construction at end of year	0
Coal charged into ovens:	
Quantity, net tons	8,475,446
Average value, per net ton	$2.52
Beehive coke produced, net tons	5,538,042
Average yield of coke from coal, per cent	65.3
Coke used by producer, net tons	495,481
Furnace and foundry coke sold:	
Quantity, net tons	4,969,052
Average value, per net ton	$5.42
Domestic and other coke sold:	
Quantity, net tons	56,874
Average value, per net ton	$4.79
Screenings and breeze:	
Used by producer, net tons	10,520
Sold, net tons	12,910
Average value, per net ton	$3.06

TABLE II—THE BEEHIVE COKE INDUSTRY, BY STATES, IN 1921*

State	Coal Charged Into Beehive Ovens Net Tons	Beehive Coke Produced a Net Tons	Beehive Coke Used by Producer a Net Tons	Total Sales of Beehive Coke and Breeze Net Tons	Total Sales of Beehive Coke and Breeze Value
Alabama	223,119	132,912	69,586	63,133	$411,471
Colorado	123,828	81,376	56,358	26,219	244,581
Georgia	12,708	6,943	.....	7,243	80,888
Kentucky	161,507	99,442	.....	100,509	753,621
Ohio	99,787	62,150	62,126	1,344	2,917
Pennsylvania	6,722,491	4,466,105	275,834	4,174,164	20,842,186
Tennessee	54,328	28,005	6,403	21,466	136,044
Virginia	442,038	280,476	13,034	270,662	1,946,364
Washington	6,291	3,495	.....	3,495	34,572
West Virginia	343,226	209,537	12,116	198,313	1,313,305
New Mexico and Utah	286,123	167,601	24	172,288	1,457,980
Total	8,475,446	5,538,042	495,481	5,038,836	27,223,929

(a) Excludes screenings and breeze.

TABLE III—ESTIMATED MONTHLY PRODUCTION OF BEEHIVE COKE IN 1921*
(In Net Tons)

Month	Production	Month	Production	Month	Production
January	1,088,000	May	302,000	September	291,000
February	870,000	June	233,000	October	418,000
March	578,000	July	181,000	November	480,000
April	330,000	August	250,000	December	517,000

* Compiled by H. L. Bennit, U. S. Geological Survey, Dec. 9, 1922.

Incomplete Data Will Hamper Commission in Making Report Jan. 15; Important Deductions Likely

BY PAUL WOOTON
Washington Correspondent of *Coal Age*

In making its Jan. 15 report the U. S. Coal Commission will be greatly handicapped by lack of complete figures, but it is believed many pertinent deductions can be made from the returns that will have been received by the time the report must be written. In that connection it is charged that returns have been delayed because an adequate supply of cost forms has not been made available. It is stated that the number of forms needed was underestimated. While it is probable that the number of companies which will require the C-1 form does not exceed 2,000, the average number which each company will require is large. This is due to the fact that many of the companies will make separate returns for each mine. Many of the companies operate in more than one district. Forms must be had for local associations and for the National Coal Association. Allowance must be made for work sheets and wastage.

Commissioner Neill has signed an agreement proposed by J. C. Bryden, chairman of the special committee of bituminous operators which is co-operating with the commission, whereby the name of the company, the location of its offices and the names of its mines may be omitted from the labor form povided that information is furnished on a separate sheet. A confidential identification mark can be placed on the sheet in lieu of the name of the company, which will be kept by the commission in a confidential file. The feeling is that the commission very properly may safeguard the business secrets of the reporting company, especially in such a matter as wages. On the other hand, it is equally apparent to all concerned that the commission cannot accept anonymous information, but it is a comparatively easy matter to identify reports in a manner which need reveal none of the information which would injure the individual making the returns.

The week of Dec. 18 was taken up largely in discussions between the commission and its staff and with Washington retailers. The amount of time which the commission has taken with the Washington retailers has led some to wonder how a body charged with responsibilities of such a pressing character can take up such details as have been under discussion. The thought is that such work should be left to field agents of the commission, although it is admitted that more profit than is apparent may come from these conferences. One outcome has been the tracing of high-priced coal, which has revealed some very significant information, it is believed.

George J. Anderson made a statement before the commission on Dec. 22 in regard to industrial relations in the coal industry. Mr. Anderson appeared at the request of the commission.

Supplemental instructions regarding the filling out of details of Form L-1, covering earnings of mine labor have recently been issued, as follows:

Referring to the letter of instructions for filling out the details in Form L-1, it was stated in the paragraph referring to column 48 that a formula would be sent later for deriving the net annual earnings. The method for deriving the net earnings is as follows: from the gross earnings subtract charges for items such as powder, dynamite and other kinds of explosives, caps, fuses, oils, carbides, smithing, etc. These are not given as a complete list, but are typical of the kind of occupational expenses that are to be deducted; and if there are any items which are deducted at any particular mines and are not included in the above, and are of the same type of occupational expenses, they are to be included for that time in the items to be deducted.

The deductions are, of course, to be made only from the classes of employees against whom these charges are made. For example, the charge for explosives would be made against all classes of miners who actually pay for explosives, but would not be made against machine runners who were not required to work in occupations which required the use of explosives. Any amounts deducted for checkweighmen or check docking bosses should also be subtracted from gross earnings in order to derive the final net earnings. Other deductions made on account of the union are not to be subtracted from gross earnings.

It is understood that in some cases only one general deduction is made for the union account and that this includes items for checkweighmen lumped in with the other items. In such cases the payroll sheets would not show the amount of the total deduction properly chargeable as a deduction for checkweighmen. If the amount of this item can be secured, that amount should be deducted from the gross earnings. If the amount cannot be secured, the deduction need not be made, but a note should be appended to Form L-1 that this item is not included in the deductions.

It would, of course, be preferable if the actual amount of each of these items of occupational expense charged against the individual miner could be determined and deducted from each regular payment made to him. But a study of some 150 payrolls disclosed that the deductions for these items along with other deductions such as rent, coal, store, doctors and other items were all lumped together and deducted from the gross earnings in order to find the *cash balance* due each employee at each payroll period. While this is entirely proper for the purpose of arriving at the cash due, the net payment to the miner included obviously many items of living expenses which would not be proper deductions in determining his net income as a worker. To require that the various properly deductible items should be added together for each individual, and deducted from his earnings at each payroll period would involve an enormous amount of work and very seriously delay Form L-1. In order to avoid this and secure what are substantially correct figures, the following method has been decided upon for securing the net earnings.

For tonnage workers, for example, the method would apply as follows: for each payroll period take first the machine runners and add together the total earnings of all machine runners for that payroll period. Then total the deductions made from machine runners for oil and smithing, if these items are charged against the operatives, and any other similar items charged against them that represent their occupational expenses. Add together the gross earnings of each payroll period for this class of employees and find the total annual gross earnings; similarly, add together the total deductions of the kind enumerated above, charged to this class of employees; then find what percentage the total annual deductions are of the total gross earnings, and deduct from the annual earnings of each of these machine runners as shown in column 48 the percentage arrived at, and place the net earnings thus derived in column 50.

Follow a similar method for each of the other classes of employees; that is, take the total gross earnings of each separate class such as pick miners, loaders, etc., and the total deduction *for each such class*, and reduce the gross annual earnings of each individual by the percentage that the total deductions are of the total annual gross earnings of the class.

While this method will be applicable in all cases where an employee remains in the same class throughout the year, it is appreciated that it will not apply properly where there is a change in occupations. It would obviously be preferable if the occupational deductions from gross earnings for each class could be determined monthly and the actual net earnings for each month set down, and in cases where a company prefers to do this it may do so. But the annual basis outlined above seems simpler and shorter.

Where there is a change of occupations and the percentage of occupational deductions changes along with the change in occupation, the following method should be adopted. If, for example, a pick miner or a loader worked as such for four months and as a machine runner for eight months, the total earnings for the first four months should be reduced by the percentage properly applicable to the occupation of pick miner or loader, and the total earnings for the last eight months reduced by the percentage of the reductions, if any, applicable to machine runner.

Similarly, if a man worked, say, four months as a miner and eight months as a dayman, and if there were no occupational deduction properly chargeable to day men, then the deduction on earnings should only be made from his first four months' earnings.

It is understood that there are many cases in which powder or other occupational supplies are not purchased direct from the companies but from outside stores, and in this case nothing would appear on the payroll. Where this is the case no deductions based on payroll figures could be made for these occupational items and the company in such cases will report merely that these supplies are not purchased from the company and that no reductions have been made. Each company in which this conditions exists is asked, however, to state what percentage of the gross earnings it believes to be represented by these outside purchases. A factor will be arrived at in the offices of the commission, based on the percentage by these supplies in other neighboring places, and the deduction will be made here.

McChord and Eastman Reappointed

Charles C. McChord, of Kentucky, and Joseph B. Eastman, of Massachusetts, have been confirmed by the Senate for new terms as Commissioners of the Interstate Commerce Commission. The term is for seven years.

Utilities Proxy to Face Coal Commission

The President's Coal Commission will confer on Jan. 3 with J. W. Leib, chairman of the joint committee which the utility associations have set up. The commission expects to hear extensively from Mr. Leib in regard to the problems and suggestions of large consumers of coal.

Preliminary Statistics of Production of Coal in 1921

(Exclusive of product of wagon mines)

County	Loaded at Mines for Shipment (Net Tons)	Sold to Local Trade and Used by Employees (Net Tons)	Used at Mines for Steam and Heat (Net Tons)	Made into Coke at Mines (Net Tons)	Total Quantity (Net Tons)	Total Value	Average Value per Ton	Number of Employees — Underground — Miners, Loaders etc. (a)	Underground — All Others	Surface	Total	Average Number of Days Worked
Texas												
Bituminous (b)	196,004	2,286	12,348	.....	210,638	$1,241,000	$5.89	1,077	351	168	1,596	121
Lignite (c)	751,585	405	10,211	.....	762,201	1,322,600	1.74	912	258	126	1,296	161
Total	947,589	2,691	22,559	.....	972,839	$2,563,600	$2.64	1,989	609	294	2,892	139
Utah												
Carbon	3,314,553	55,832	69,203	262,053	3,701,641	$12,309,000	$3.33	2,178	929	851	3,958	156
Emery	231,525	9,284	469	.....	241,278	870,000	3.61	161	50	44	255	95
Grand, Iron and San Pete	69,569	2,247	2,064	.....	73,880	296,000	4.00	60	31	13	104	83
Summit	53,014	3,618	1,539	.....	58,171	170,000	2.92	47	27	21	95	186
Uintah	.....	3,724	90	.....	3,814	17,000	4.54	4	4	2	10	185
Total ( )	3,668,661	74,705	73,365	262,053	4,078,784	$13,662,000	$3.35	2,450	1,041	931	4,422	151
Virginia												
Chesterfield and Pulaski	24,173	13,931	14,312	.....	52,416	$203,700	$3.89	78	35	41	154	258
Dickinson	433,955	4,528	9,904	.....	448,387	1,378,000	3.07	281	229	145	655	191
Lee	677,029	7,952	2,947	.....	687,928	1,927,000	2.80	748	390	253	1,391	159
Montgomery	25,368	5,752	5,610	.....	36,730	155,000	4.22	61	24	20	105	189
Russell	1,514,803	22,481	6,578	.....	1,543,862	4,639,000	3.00	873	597	484	1,954	171
Tazewell	1,199,618	25,455	28,829	.....	1,253,902	3,989,000	3.18	836	806	278	1,920	195
Wise	2,943,232	72,630	30,770	422,521	3,469,153	10,656,000	3.07	2,874	1,975	894	5,743	153
Total	6,818,178	152,729	98,950	422,521	7,492,378	$22,947,700	$3.06	5,751	4,056	2,115	11,922	166
Wyoming												
Carbon and Uuinta	549,667	19,367	24,196	.....	593,230	$2,131,000	$3.59	277	155	122	554	186
Converse, Johnson and Weston	109,434	11,524	13,881	.....	134,839	484,400	3.59	90	55	41	186	174
Fremont, Hot Springs and Park	649,514	6,659	37,343	.....	693,516	2,751,100	3.97	445	306	183	934	156
Lincoln	1,224,188	10,556	68,111	.....	1,302,855	4,202,000	3.23	725	363	283	1,371	224
Sheridan	898,782	23,453	16,034	.....	938,269	2,541,000	2.71	899	250	172	1,321	71
Sweetwater	3,443,699	31,936	62,322	.....	3,537,957	11,249,000	3.18	2,353	1,102	663	4,118	178
Total	6,875,284	103,495	221,887	.....	7,200,666	$23,358,500	$3.24	4,789	2,231	1,464	8,484	167
Washington												
King	316,597	11,904	13,045	.....	341,546	$1,053,000	$3.08	576	523	310	1,409	99
Kittitas	1,316,747	21,845	52,937	.....	1,391,529	5,766,000	4.14	1,149	402	288	1,839	194
Lewis	125,358	10,449	3,630	.....	139,437	449,000	3.22	75	56	45	176	225
Pierce	86,778	2,297	7,151	6,291	102,517	613,000	5.98	184	168	102	454	129
Skagit and Whatcom	180,500	10,951	5,372	.....	196,823	895,000	4.55	146	52	57	255	277
Thurston	248,222	2,198	6,450	.....	256,870	1,011,000	3.94	111	44	46	201	202
Total	2,274,202	59,644	88,585	6,291	2,428,722	$9,787,000	$4.03	2,241	1,245	848	4,334	159
West Virginia												
Barbour	966,561	13,814	24,024	43	1,004,442	$2,842,200	$2.83	1,111	513	267	1,891	114
Boone	1,156,322	15,247	8,539	.....	1,180,108	3,092,000	2.62	1,330	596	373	2,299	118
Braxton	138,548	32,458	4,773	.....	175,779	433,000	2.46	228	100	59	387	91
Brooke	879,797	647,379	4,281	.....	1,531,457	4,167,000	2.72	1,526	372	254	2,152	182
Clay	503,324	19,661	7,542	.....	620,527	1,458,000	2.35	463	168	160	791	205
Fayette	5,792,650	153,488	63,656	127,002	6,136,796	19,755,000	3.22	6,171	3,461	1,690	11,322	129
Grant	150,833	847	3,954	.....	155,634	439,000	2.82	179	84	81	344	122
Greenbrier	110,557	32,818	1,546	.....	144,921	329,000	2.27	207	91	58	356	103
Hancock	1,654	1,627	75	.....	3,356	8,500	2.53	11	.....	.....	11	85
Harrison	3,623,794	130,544	13,226	.....	3,767,564	10,980,000	2.91	3,878	1,609	949	6,436	110
Kanawha	3,842,356	93,462	19,401	.....	3,955,219	11,025,000	2.79	3,993	2,020	1,433	7,446	126
Lewis	20,929	2,305	206	.....	23,440	48,000	2.05	54	25	16	95	82
Lincoln	240,581	2,356	2,706	.....	245,643	612,000	2.49	220	111	75	406	166
Logan	11,213,913	228,571	41,633	.....	11,484,117	29,482,000	2.57	6,045	4,412	2,080	12,537	168
McDowell	13,184,559	207,600	252,851	78,486	13,703,496	40,373,000	2.95	7,119	5,624	3,411	16,154	163
Marion	4,565,535	196,337	138,393	37,609	4,938,874	13,589,000	2.75	3,420	1,691	887	5,998	160
Marshall	744,290	324,114	23,905	.....	1,092,309	3,340,000	3.06	803	346	186	1,335	174
Mason	32,174	32,314	4,907	.....	69,395	204,000	2.94	109	46	34	189	116
Mercer	2,964,327	107,419	15,873	73,891	3,161,510	9,346,000	2.96	1,667	1,305	687	3,659	232
Mineral	99,808	1,337	999	.....	102,144	330,000	3.23	343	106	90	539	63
Mingo	1,766,828	99,180	27,715	.....	1,893,723	4,978,000	2.63	1,536	1,097	593	3,226	155
Monongalia	3,747,064	91,255	1,494	.....	3,839,813	9,003,000	2.34	2,566	970	621	4,157	142
Nicholas	117,944	11,614	3,642	.....	133,200	412,000	3.09	180	83	49	312	120
Ohio	1,278,466	166,108	30	.....	1,444,604	3,857,700	2.67	1,076	356	175	1,607	207
Preston	479,184	180,997	12,728	15,024	687,933	1,974,000	2.87	1,155	643	300	2,098	88
Putnam	272,003	5,046	11,281	.....	288,330	862,000	2.99	470	246	108	824	191
Raleigh	7,012,640	119,682	68,580	.....	7,200,902	22,285,000	3.09	4,422	3,008	1,471	8,901	153
Randolph	519,261	17,197	11,540	2,003	550,001	1,679,000	3.05	508	180	110	798	108
Taylor	503,549	5,147	8,153	.....	516,849	1,347,000	2.61	712	313	185	1,210	90
Tucker	844,923	11,976	38,326	6,072	901,297	3,118,000	3.46	930	309	126	1,365	162
Upshur	488,411	11,625	8,938	.....	508,974	1,285,000	2.52	433	208	137	778	123
Wayne	34,487	122	650	.....	35,259	79,100	2.24	70	34	23	127	120
Webster	11,463	9,073	.....	.....	20,536	57,000	2.78	45	10	5	60	145
Wyoming	1,213,624	7,505	224	.....	1,226,353	3,749,000	3.06	765	783	385	1,933	156
Other counties (e)	36,837	2,836	2,818	.....	42,491	123,000	2.89	56	31	20	107	103
Total	68,655,196	2,983,061	808,609	340,130	72,786,996	$206,661,500	$2.84	53,801	30,951	17,098	101,850	149

(a) Includes all shotfirers. (b) Erath, Maverick, Palo Pinto, Webb and Wise counties. (c) Bastrop, Henderson, Hopkins, Houston, Leon, Medina, Milan Shelby and Wood counties. (d) In addition to the above, 11,611 tons were produced by small mines, and sold to local trade. The total production of the state was therefore 4,090,395 tons and the total sold to local trade and used by employees was 86,316 tons. (e) Gilmer and Summers.

Statistics compiled by L. Mann, U. S. Geological Survey, Nov. 4, 1922.

Collective Analytical Study of Costs Is Legal, Says Nelson B. Gaskill

Trade associations or groups interested in cost accounting may meet solely for the purpose of the study of costs, the detection of errors and the improvements of their methods without contravention of law, in the opinion of Commissioner Nelson B. Gaskill, of the Federal Trade Commission. Mr. Gaskill further believes that it is perfectly legal to make reports of such conferences available to absent members, government agencies and other interested parties. This opinion was expressed unofficially by Mr. Gaskill in response to an inquiry from E. W. McCullogh, manager of the Fabricated Production Department of the Chamber of Commerce of the United States.

"To prohibit collective study of costs for the purpose of their analysis, the detection of errors, and the improvement of methods, is to shackle educative progress," Mr. Gaskill said.

Revision of Western Coal Rates Recommended in Tentative Report of I. C. C. Inquiry

Many revisions in the rates on anthracite and bituminous coal from mines in New Mexico, Colorado, Wyoming, Montana and other Western states are recommended in a lengthy tentative report submitted by Attorney-examiner M. A. Pattison, for the Interstate Commerce Commission, in Docket No. 13588, entitled "Western Coal Rates." The report summarizes "an investigation instituted by the commission on its own motion into the reasonableness and lawfulness of interstate rates on coal" in Western territory.

"Complaints against the rates on coal in this territory," the report says, "have been numerous, and those more recently considered have disclosed a lack of uniformity in the rate structure, both with respect to the measure of the rates and the relationships between the various competing mines and groups of mines, that appeared to call for a comprehensive inquiry." Cameron Coal Co. et al. vs. A. T. S. F. Ry. Co. et al., No. 9613, also is embraced in the report. Hearings, extending over seven months, were held at Denver, Salt Lake City, Butte, Seattle, San Francisco, Phoenix and El Paso.

Colorado and New Mexico shippers presented evidence on interstate rates from Colorado into New Mexico, Wyoming and other Western states as well as in regard to the intrastate adjustment in Colorado. After reviewing the evidence adduced the report states: "There appears to be no just reason why the Union Pacific should maintain rates from its northern Colorado mines to Cheyenne that exceed those from Hanna. For the future the rates from the two districts should be the same. . . . The Colorado & Southern and Burlington have met the rate of the Union Pacific from the Rock Springs-Kemmerer district, disregarding the additional haul from Kirby, but the former has failed to accord a similar adjustment to the Walsenburg operators, although their advantage is 23 miles as compared with Rock Springs-Kemmerer and 61 miles as compared with Kirby."

Discriminate Against the Walsenburg District

The report says, further: "If the Colorado & Southern and Burlington, affiliated lines, consider it a good policy to maintain the same rate from Kirby to Cheyenne as the Union Pacific maintains from the Rock Springs district, thus permitting the Kirby operators to compete on an equality with the Rock Springs operators, they should accord similar treatment to the operators in the Walsenburg district, whose mines are not only less distant from the common market but are served under no greater operating disadvantages than prevail generally in this territory. The rates from Walsenburg to Cheyenne should not be higher than $3.25, and in no event should exceed the rate from Kirby."

In regard to Montana rates the report states: "The rates from Sheridan to points in Montana on the Northern Pacific east of Billings should not exceed the rates from Red Lodge to the same points by more than 30c. and to points on the line of that carrier west and on the Great Northern when routed via Billings by more than 45c. For the added haul of 124 miles from Kirby, rates therefrom should not exceed those from Red Lodge by more than 60c. Unless the authority of the Montana Commission is obtained for increasing the basic Red Lodge rates, observance of the differentials from Sheridan and Kirby must necessarily be accomplished by reduction. . . . A maximum differential of 25c. against the Sheridan mines at points west of Clark's Fork to and including Spokane would meet the desire of the Sheridan operators and would conform to the general rule of diminishing differentials with increasing distances. The present differential is less than the maximum here suggested as proper, and need not be changed. . . . The materially shorter distances via Sidney would seem to require the establishment of rates via that junction. Joint rates should therefore be published by way of Sidney from Sheridan to points on the Great Northern in northeastern Montana, to which the short-line distances over that route are shorter than through Havre, and such rates should not exceed the rates for corresponding distances from Sheridan to points on the Great Northern north of Billings. The rates via Billings and via Sidney should be restricted in their application so as to avoid fourth-section departures."

"The rates on coal from mines in Utah to destinations in Idaho, Montana, Oregon and Washington, referred to collectively as the Northwest" the report says, are higher than the rates from mines in the Kemmerer-Rock Springs district by from 22 to 45c. and over, and one of the principal points of controversy developed in this investigation was the propriety of this adjustment. The Utah operators claim the right to a rate equality in this territory with their competitors in Wyoming. On the other hand, the Wyoming operators claim the differential should be substantially greater. . . .

"The operators in the Utah district protest against the inclusion of the mines in the Kemmerer and Rock Springs groups in one rate district and contend that it has the effect of moving Rock Springs, the principal shipping group, 47 miles farther to the west to the disadvantage of the Utah mines from a comparative distance standpoint. The Wyoming operators, who would naturally be presumed to have a greater interest in the grouping of their mines, are content with the present arrangement. . . .

Adjustment Based on Consolidated Fuel Case

"The adjustment prevailing today between the Utah and southern Wyoming mines on traffic to points reached through the McCammon or Pocatello gateway is the result of the decision in Consolidated Fuel Co. vs. A. T. & S. F. Ry. Co., 24, I.C.C., 213, decided June 3, 1912. On the date of that decision the rates to Pocatello were $2 from the Kemmerer-Rock Springs district and $2.25 from the Castle Gate district as then constituted, a difference of 25c.

"Consideration of the circumstances which brought about the establishment of the 25c. differential from the Castle Gate district as now constituted and the differences in the distances and operating conditions . . . leads to the conclusion that ths Consolidated Fuel Co. case cannot be deemed controlling. A differential of less than 50c. per ton at McCammon will be for the future unduly prejudicial to the operators in the Kemmerer-Rock Springs district and unduly preferential of the operators in the Castle Gate district."

"The rate from the Kemmerer-Rock Springs district to Butte compares favorably with the rates from competing districts. The length of haul and the competitive conditions at Butte justify a slightly lower differential against the Utah mines than at McCammon. A differential in excess of 40c. will be for the future unduly prejudicial to the producers in the Castle Gate district."

The report notes that "rates to Portland and Seattle are highly competitive," but states that "the Washington Coal Producers' Association does not in this proceeding attack the reasonableness of the rates now maintained by the carriers serving the Washington mines." The Washington operators oppose reduction in the rates from the Utah and southern Wyoming districts and contend that the present rates from these districts are too low.

In considering rates to San Francisco the report says: "No changes should be required in the rates from the Kemmerer-Rock Springs district except that the rates on nut and slack should not be more than 50c. and 75c., respectively, lower than the rates on lump. In recognition of the principle that as distances increase the differentials should decrease, rates from the Castle Gate district should be 25c. higher than those from southern Wyoming. To Seattle, rates from the Sheridan, Red Lodge and Rock Springs dis-

tricts are the same, and from Utah 22c. higher. The distances from the Rock Springs and Castle Gate districts are greater to Seattle than to Portland or San Francisco, and the rates are properly higher. The differential against the Utah mines should be the same as at Portland, or 25c. per ton. The rates from the Kemmerer-Rock Springs district to Spokane have been adjusted with relation to the rates from Sheridan and Kirby and the rates from Utah are differentially related to those from southern Wyoming. The differential against the Utah mines is less than that found reasonable at Portland and should be increased to 25c."

On rates to points on the Southern Pacific in Oregon, the report states: "For the future the rates on lump coal from the Rock Springs district should not exceed $6.25 to Salem, $6.50 to Eugene, and $6.85 to Roseburg, Medford and Ashland, with corresponding reductions to other points north of Ashland. The rates from the Castle Gate district should be 25c. higher."

"There is no reason disclosed in this record, either from a transportation or competitive standpoint," says the report, "why the rates on anthracite coal from Crested Butte should be so much in excess of those on bituminous coal. For the future the rates on anthracite coal from Crested Butte to interstate destinations should not exceed the rates contemporaneously maintained on bituminous lump coal to the same destinations by more than 50c. per ton. . . .

"The equalization of rates as between the Kemmerer-Rock Springs and Castle Gate districts at Ogden is maintained also at points in Utah north of Ogden, but at Preston and Malad, Idaho, the termini of branch lines of the O. S. L. extending from Cache Junction, Utah, and Brigham, Utah, respectively, rates from southern Wyoming are 25c. lower. The average distances from the southern Wyoming mines to those points over the routes through McCammon or Ogden, depending upon the point of origin, are 34 miles greater at Preston and 51 miles greater at Malad than the average distances from the Castle Gate mines. The differential against the latter should be eliminated. . . . The competitive conditions at Salt Lake City are more compelling than at Ogden. The Union Pacific should now be permitted to publish rates of $2.50 on lump, mine run and nut, and $2.20 on slack to points south of Ogden on the O. S. L. This will result in a differential of 40c. at Salt Lake City, which, in view of the relative conditions of operation on the Union Pacific and Rio Grande will not be too low. The maintenance of the present differential relationship is unduly prejudicial to the southern Wyoming operators. . . . Rates from the Rock Springs-Kemmerer district to points in Utah between Lyndyll and Uvada," the report states, "should be 75c. per ton higher than the corresponding rates from the Castle Gate district, and to Boyd, Nevada, and to points west thereof 50c. higher.

"Present relationships are unduly prejudicial to the operators in the Raton-Dawson field and unduly preferential of their competitors. Tha rates from the Los Cerrillos district to points on the Santa Fe and its connection west of Gallup should not exceed the rates on the same classes of coal contemporaneously in effect from Gallup to the same points by more than $1.30 per ton, which differential may be reduced on the longer hauls to competitive points in California. The rates from the Raton-Dawson district to these points should not exceed those from Los Cerrillos by more than $1.10. Rates from the Los Cerrillos and Gallup districts to points south of Belen appear to be reasonably related. To such points the rates from the Raton-Dawson district via the Santa Fe should not exceed the corresponding rates from Los Cerrillos by more than $1.10. . . . Under all the circumstances a differential of 15c. is justified and should be observed on all classes of coal, both eastbound into Colorado and westbound into New Mexico, Arizona and California. The rates from the Walsenburg district southbound should be based upon the generally recognized differential of 25c. over the rate from the Trinidad district."

Eleven Firms Submit Bids on 178,895 Tons Of Coal for N. Y. City Departments

Eleven bids were received by the Board of Purchase of the City of New York on Dec. 21 for furnishing and delivering to several of the city departments during the three months ending March 31, 1923, 178,895 net tons of coal, of which 59,661 tons is to be buckwheat; 10,680 tons, No. 2 buckwheat; 18,600 tons, No. 3 buckwheat; 36,253 tons, bituminous, run-of-mine; 3,000 tons mixed (No. 3 buckwheat and run-of-mine); 2,078 tons, pea; 247 tons, chestnut; 6,132 tons, stove; 12,694 tons, egg; 350 tons, coke, and 29,200 tons mixed.

The prices submitted showed a wide range. The lowest bids received for furnishing and delivering No. 1 buckwheat in the various boroughs ranged from $9.50 to $10.38; No. 2 buckwheat, from $6.60 to $7.09; No. 3 buckwheat, $5.60; bituminous, run-of-mine, $10.50 to $15.94; pea coal, $12.25 to $15.74; screened bituminous, $12.40 to $14.54.

For barge deliveries of No. 1 buckwheat bids ranged from $6.82 to 7.98; No. 2 buckwheat, $6.19 to $9.98; No. 3 buckwheat, $3.97 to $5.60, and for bituminous, run-of-mine, from $9.74 to $10.95; anthracite, stove and egg, and coke (stove coal size), $14.25 each.

For carload deliveries of buckwheat No. 1 on Long Island there were two bids, $8.45 and $12.24, and for bituminous, run-of-mine, there were two bids, $10.95 and $11.14.

To Discuss Car-Distribution Rules

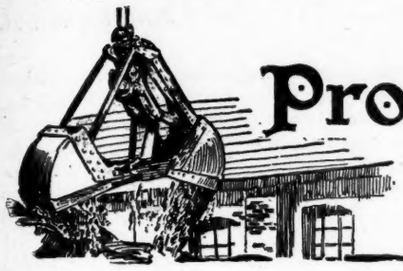
A conference between representatives of the National Coal Association and of the American Railroad Association will be held in Washington the week of Jan. 8 to discuss car-distribution rules other than those applying to assigned cars. An effort will be made to reach an agreement on as many as possible of the amendments which have been put forward. Others interested will be invited to this conference.

Monthly Production and Average Daily Production of Byproduct Coke in the United States, Jan., 1917, to Oct., 1922 (a)

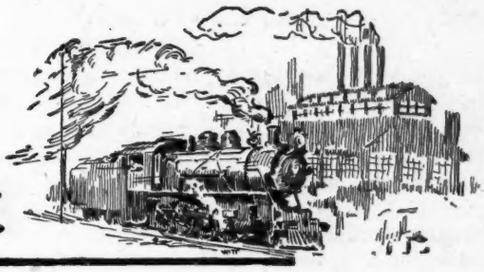
(In Net Tons)

Month	1917 Monthly Production	1917 Daily Average	1918 Monthly Production	1918 Daily Average	1919 Monthly Production	1919 Daily Average	1920 Monthly Production	1920 Daily Average	1921 Monthly Production	1921 Daily Average	1922(b) Monthly Production	1922(b) Daily Average
January	1,788,000	58,000	1,638,000	53,000	2,445,000	79,000	2,426,000	78,000	2,259,000	73,000	1,879,000	61,000
February	1,807,000	65,000	1,534,000	55,000	2,153,000	77,000	2,343,000	81,000	1,872,000	67,000	1,795,000	64,000
March	1,813,000	58,000	2,028,000	65,000	2,285,000	74,000	2,646,000	85,000	1,757,000	57,000	2,137,000	69,000
April	1,859,000	62,000	2,002,000	67,000	2,025,000	68,000	2,267,000	75,000	1,506,000	50,000	2,208,000	74,000
May	1,879,000	61,000	2,106,000	68,000	1,906,000	61,000	2,400,000	77,000	1,577,000	51,000	2,537,000	82,000
June	1,880,000	63,000	2,080,000	69,000	1,935,000	65,000	2,487,000	83,000	1,396,000	47,000	2,580,000	86,000
July	1,882,000	61,000	2,288,000	74,000	2,244,000	72,000	2,658,000	86,000	1,286,000	41,000	2,486,000	80,000
August	1,915,000	62,000	2,366,000	76,000	2,265,000	73,000	2,742,000	88,000	1,371,000	44,000	1,794,000	58,000
September	1,919,000	64,000	2,392,000	80,000	2,168,000	72,000	2,744,000	91,000	1,411,000	47,000	2,244,000	75,000
October	1,898,000	61,000	2,547,000	82,000	1,747,000	56,000	2,915,000	94,000	1,720,000	55,000	2,806,000	91,000
November	1,900,000	63,000	2,496,000	83,000	1,971,000	66,000	2,679,000	89,000	1,751,000	58,000	2,908,000	83,000
December	1,899,000	61,000	2,521,000	81,000	1,992,000	64,000	2,527,000	82,000	1,844,000	59,000	.....	.....
Totals	22,439,000	61,000	25,998,000	71,000	25,138,000	69,000	30,834,000	84,000	19,750,000	54,000	.....	.....

(a) Exclusive of screenings and breeze. Similar tables showing the monthly production of beehive coke appred in weekly reports No. 222 and 235.
(b) Subject to revision.
Compiled by H. L. Bennit, U. S. Geological Survey, Dec. 16, 1922.



Production and the Market



Weekly Review

Transportation troubles and cold weather have bolstered a falling market and demand has grown by leaps and bounds during the past week. Crippling weather has proved too severe for the railroads and motive power has failed to carry the load. Engine trouble has slowed down the movement of loads and the return of empties, curtailing production, and the cold weather has swept a multitude of orders to the retailers. The indifferent attitude of industrial buyers has been upset and many of the smaller consumers have rushed into the market for immediate deliveries. Higher prices are inevitable under such conditions and *Coal Age* Index of spot bituminous coal prices rose 13 points during the week to 349 on Dec. 26, representing an average price at the mine of $4.23, compared with $4.07 in the week preceding. This is the highest mine price since late in October.

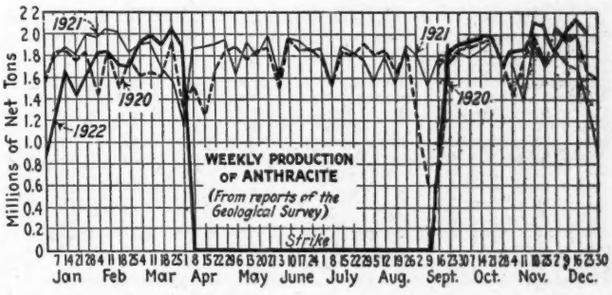
Pinch Tightest in North Atlantic Section

All markets are stronger, but the larger North Atlantic centers seem to be feeling the pinch more than any other section. Demand is tremendous as receipts continue to lighten and "coal is coal" with the market sensitive to every demand made upon it. Quality coals are off the market and intermediate pools show but little price range. The domestic situation in the East adds considerably to the shortage. Screened coals are in strong demand and attractive prices are being offered for quick shipment. The available supply is not large, however, and thus a considerable tonnage of inferior or poorly prepared coal is being loosed upon a brand new market. It is to be hoped that this practice can be checked or domestic soft coal will have its reputation ruined in this new territory almost before it has had time to be given a fair trial. There are a number of concerns shipping excellent domestic coals to New York who have built up a trade with much care, but the trend of market conditions is causing them anxiety lest their high-grade screened product be classified with the nondescript tonnage that a boom market always attracts.

New England consumers have ample reserves and while they must pay higher prices than a fortnight ago the condition of their stockpiles is all that keeps delivered prices from soaring. Offerings of Southern coal from Hampton Roads are light and high priced and this has improved the position on all-rail fuel.

Sellers' Market Appears Almost Overnight

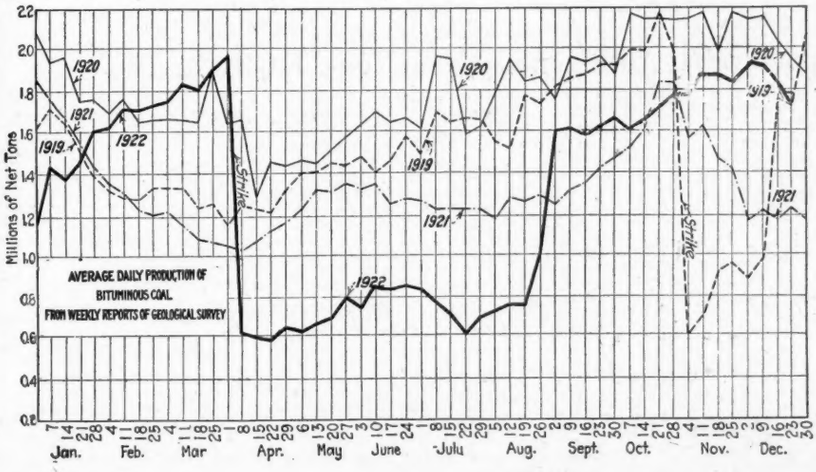
Screenings are very scarce in Chicago and the Middle West. The cold weather has increased the domestic demand and all prices are up. What was a surplus industrial market has been turned almost overnight into a sellers' market with buyers endeavoring to overcome their individual shortages. Illinois coals are in good demand in the Northwest, where brisk weather has



strengthened the market, both all-rail and off the docks.

The Eastern Inland section is also experiencing a shortage, with slow deliveries aggravating buyers. Pittsburgh district coal is stronger, as local demand is good and the East is hot after prepared sizes.

The retail trade is barely existing on the meager receipts of anthracite. Substitute bituminous fuel, scorned a few weeks, ago, is in active demand and is fast being cleaned up. Retailers did not stock heavily,



Estimates of Production

(Net Tons)

BITUMINOUS

	1921	1922
Dec. 2	7,105,000	10,387,000
Dec. 9 (*b*)	7,312,000	11,495,000
Dec. 16 (*a*)	7,063,000	10,518,000
Daily average	1,177,000	1,753,000
Calendar year	391,661,000	387,452,000
Daily av. cal. year	1,331,000	1,311,000

ANTHRACITE

Dec. 2	1,815,000	1,819,000
Dec. 9 (*b*)	1,675,000	2,038,000
Dec. 16 (*a*)	1,637,000	2,197,000
Calendar year	88,490,000	48,896,000

COKE

Dec. 9 (*b*)	112,000	291,000
Dec. 16 (*a*)	126,000	298,000
Calendar year	5,186,000	7,489,000

(*a*) Subject to revision. (*b*) Revised from last report.

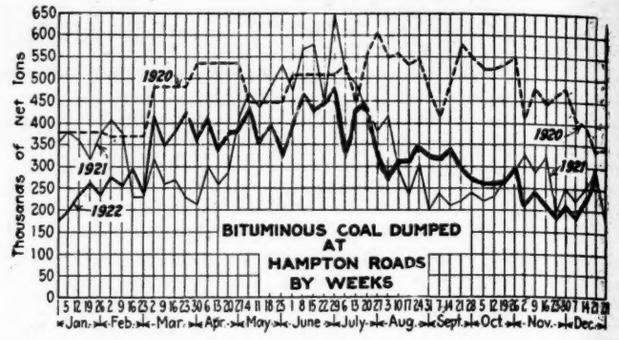
as soft-coal substitutes met a very cool reception earlier in the season, and this sudden demand found most of the Eastern dealers unable to meet the situation. Buckwheat is in excellent position because of the scarcity of domestic anthracite and the smaller steam coals of the independents are now selling at company circular or above.

Canadian buyers who had been bidding up the independent market have been checked by an announcement from Washington that shipments must be discontinued, temporarily at least, because of the acute shortage in the United States.

BITUMINOUS

Production of soft coal has been falling since the second week of December. Estimates for the week ended Dec. 16 show an output of 10,518,000 net tons, according to the Geological Survey and for last week (Dec. 18-23) around 10,000,000 to 10,300,000 tons. The decline began on Dec. 12, due to the observance of miners' election day in some union districts, and has continued since that date, which marked the first real wintry weather this year. It is generally attributed to the failure of the railroads' motive power to stand the strain of heavy traffic under unfavorable weather conditions.

November saw a production of 45,300,000 net tons—23 per cent more than during November, 1921, and only exceeded twice in the last ten years. Cumulative production for the year was 361,000,000 tons, or 6 per cent less than in 1921, a year of business depression. Largely on account of the strike, this was 30 per cent less than in 1920 and 20 per cent less than the average for the last nine years.



Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Low-Volatile, Eastern	Market Quoted	Dec. 26 1921	Dec. 11 1922	Dec. 18 1922	Dec. 26 1922†
Smokeless lump	Columbus	$3.55	$6.25	$6.30	**$6.00**@$6.75
Smokeless mine run	Columbus	2.15	6.00	6.00	5.75@ 6.25
Smokeless screenings	Columbus	1.65	5.50	5.50	5.25@ 5.75
Smokeless lump	Chicago	3.10	7.75	7.75	7.50@ 8.00
Smokeless mine run	Chicago	2.40	6.25	6.60	6.50@ 6.75
Smokeless lump	Cincinnati	3.25	6.55	7.00	*6.00@ 7.50*
Smokeless mine run	Cincinnati	2.10	5.40	5.80	**6.00@ 6.50**
Smokeless screenings	Cincinnati	1.65	5.30	5.30	**6.00@ 6.25**
*Smokeless mine run	Boston	4.55	7.75	7.85	**8.50@ 8.75**
Clearfield mine run	Boston	2.05	3.60	4.15	**3.75@ 4.75**
Cambria mine run	Boston	2.50	4.35	4.55	**4.35@ 5.25**
Somerset mine run	Boston	1.80	3.85	4.10	**4.00@ 4.85**
Pool 1 (Navy Standard)	New York	3.05	5.25	5.75	**6.00@ 6.50**
Pool 1 (Navy Standard)	Philadelphia	3.00	5.15	5.35	**5.25@ 5.75**
Pool 1 (Navy Standard)	Baltimore	2.35	5.00	5.75	**6.00**
Pool 9 (Super. Low Vol.)	New York	2.30	4.60	5.15	**5.00@ 5.75**
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	4.65	4.85	**5.10@ 5.50**
Pool 9 (Super. Low Vol.)	Baltimore	2.20	4.35	5.05	**5.00@ 5.25**
Pool 10 (H.Gr.Low Vol.)	New York	2.00	4.00	4.50	**4.75@ 5.50**
Pool 10 (H.Gr.Low Vol.)	Philadelphia	2.00	3.95	4.15	**4.75@ 5.00**
Pool 10 (H.Gr.Low Vol.)	Baltimore	2.00	4.00	4.55	**4.50@ 4.75**
Pool 11 (Low Vol.)	New York	1.75	3.25	3.50	**3.85@ 4.50**
Pool 11 (Low Vol.)	Philadelphia	1.70	3.35	3.55	**4.25@ 4.65**
Pool 11 (Low Vol.)	Baltimore	1.85	3.10	4.10	4.00@ 4.25
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	2.80	3.20	**3.25@ 3.90**
Pool 54-64 (Gas and St.)	Philadelphia	1.55	3.35	3.35	.....
Pool 54-64 (Gas and St.)	Baltimore	1.40	3.00	3.85	3.75@ 4.00
Pittsburgh sc'd gas	Pittsburgh	2.65	5.25	5.25	5.00@ 5.50
Pittsburgh mine run (St.)	Pittsburgh	2.15	2.60	2.60	**3.00@ 3.25**
Pittsburgh slack (Gas)	Pittsburgh	1.65	3.25	3.25	*2.75@ 3.25*
Kanawha lump	Columbus	2.85	5.25	5.35	*5.00@ 5.50*
Kanawha mine run	Columbus	1.90	3.25	3.00	**3.00@ 3.25**
Kanawha screenings	Columbus	1.15	2.80	2.80	**2.75@ 3.00**
W. Va. lump	Cincinnati	2.90	5.75	6.25	6.00@ 6.50
W. Va. Gas mine run	Cincinnati	1.30	3.35	3.55	**3.50@ 4.00**
W. Va. Steam mine run	Cincinnati	.....	3.25	3.10	**3.25@ 3.50**
W. Va. screenings	Cincinnati	1.15	3.00	3.00	**3.00@ 3.25**
Hocking lump	Columbus	3.05	4.75	5.15	**5.00@ 5.50**
Hocking mine run	Columbus	1.95	2.60	2.60	**2.75@ 3.00**
Hocking screenings	Columbus	3.00	2.50	2.55	**2.50@ 2.75**
Pitts. No. 8 lump	Cleveland	3.00	4.10	4.35	**4.50@ 5.00**
Pitts. No. 8 mine run	Cleveland	$1.95	$3.10	$3.20	**$3.20@$3.35**
Pitts. No. 8 screenings	Cleveland	1.70	2.85	3.05	**3.00@ 3.25**
Midwest					
Franklin, Ill. lump	Chicago	3.65	5.25	5.25	**5.25@ 5.50**
Franklin, Ill. mine run	Chicago	2.90	4.10	4.10	4.00@ 4.25
Franklin, Ill. screenings	Chicago	2.10	2.35	2.70	**2.75@ 3.50**
Central, Ill. lump	Chicago	3.10	4.25	4.25	**4.25@ 4.50**
Central, Ill mine run	Chicago	2.50	3.10	3.10	3.00@ 3.25
Central, Ill. screenings	Chicago	2.00	1.65	2.00	**2.00@ 2.40**
Ind. 4th Vein lump	Chicago	3.35	5.10	5.10	5.00@ 5.25
Ind. 4th Vein mine run	Chicago	2.70	3.85	3.85	3.75@ 4.00
Ind. 4th Vein screenings	Chicago	1.75	2.25	2.25	**2.25@ 2.50**
Ind. 5th Vein lump	Chicago	2.95	4.75	4.75	4.50@ 5.00
Ind. 5th Vein mine run	Chicago	2.45	3.60	3.60	3.50@ 3.75
Ind. 5th Vein screenings	Chicago	1.80	2.00	1.95	**2.25@ 2.50**
Standard lump	St. Louis	2.80	4.25	4.10	**4.00@ 4.50**
Standard mine run	St. Louis	1.90	2.25	2.10	2.00@ 2.25
Standard screenings	St. Louis	1.40	1.35	1.35	**1.50**
West Ky. lump	Louisville	2.75	3.75	3.85	**4.25@ 4.50**
West Ky. mine run	Louisville	1.75	2.25	2.25	**3.25@ 3.50**
West Ky. screenings	Louisville	1.85	1.50	1.80	**2.25@ 2.75**
West Ky. lump	Chicago	.....	3.85	3.85	**4.00@ 4.50**
West Ky. mine run	Chicago	.....	2.60	2.60	**2.50@ 3.00**
South and Southwest					
Big Seam lump	Birmingham	3.65	3.95	3.95	3.45@ 4.45
Big Seam mine run	Birmingham	2.10	2.35	2.35	**2.50@ 2.75**
Big Seam (washed)	Birmingham	2.15	2.60	2.60	2.50@ 2.75
S. E. Ky. lump	Chicago	.....	6.25	6.25	6.00@ 6.50
S. E. Ky. mine run	Chicago	.....	4.25	3.85	3.75@ 4.00
S. E. Ky. lump	Louisville	2.85	6.35	6.35	**6.50@ 7.00**
S. E. Ky. mine run	Louisville	1.50	3.35	3.35	**3.25@ 3.75**
S. E. Ky. screenings	Louisville	1.45	3.25	3.25	*3.00@ 3.25*
S. E. Ky. lump	Cincinnati	3.15	5.85	5.85	**6.00@ 7.00**
S. E. Ky. mine run	Cincinnati	1.30	3.35	3.15	**3.00@ 3.75**
S. E. Ky. screenings	Cincinnati	1.25	2.80	2.75	**3.00@ 3.50**
Kansas lump	Kansas City	5.00	5.00	5.25	**5.50**
Kansas mine run	Kansas City	4.10	3.50	3.60	**3.75**
Kansas screenings	Kansas City	2.50	2.50	2.50	2.50

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in **heavy type**. declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Latest Pre-Strike Independent	Latest Pre-Strike Company	Dec. 18, 1922 Independent	Dec. 18, 1922 Company	Dec. 26, 1922 † Independent	Dec. 26, 1922 † Company
Broken	New York	$2.34	.....	$7.60@$7.75	$9.00	$7.75@$8.25	$9.00	$7.75@$8.25
Broken	Philadelphia	2.39	$7.00@$7.50	7.75@ 7.85	.....	7.90@ 8.10	.....	7.90@ 8.10
Egg	New York	2.34	7.60@ 7.75	7.60@ 7.85	9.25@10.50	8.00@ 8.35	**9.25@12.00**	8.00@ 8.35
Egg	Philadelphia	2.39	7.25@ 7.75	7.75	9.25@11.00	8.10@ 8.35	9.25@11.00	8.10@ 8.35
Egg	Chicago*	5.09	7.50	8.25	12.50@13.00	7.20@ 8.25	12.50@13.00	7.20@ 8.25
Stove	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@10.50	8.00@ 8.35	**9.25@12.00**	8.00@ 8.35
Stove	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Stove	Chicago*	5.09	7.75	8.25	12.50@13.00	7.35@ 8.25	12.50@13.00	7.35@ 8.25
Chestnut	New York	2.34	7.90@ 8.20	7.90@ 8.10	9.25@10.50	8.00@ 8.35	**9.25@12.00**	8.00@ 8.35
Chestnut	Philadelphia	2.39	7.85@ 8.10	8.05@ 8.25	9.25@11.00	8.15@ 8.35	9.25@11.00	8.15@ 8.35
Chestnut	Chicago*	5.09	7.75	8.25	12.50@13.00	7.35@ 8.35	12.50@13.00	7.35@ 8.35
Range	New York	2.34	.....	.....	.....	8.25	.....	8.25
Pea	New York	2.22	5.00@ 5.75	5.75@ 6.45	7.00@10.00	6.15@ 6.30	**7.00@11.00**	6.15@ 6.30
Pea	Philadelphia	2.14	5.50@ 6.00	6.10@ 6.25	7.00@ 8.00	6.15@ 6.20	7.00@ 8.00	6.15@ 6.20
Pea	Chicago*	4.79	6.00	6.25	7.00@ 8.00	5.49@ 6.03	7.00@ 8.00	5.49@ 6.03
Buckwheat No. 1	New York	2.22	2.75@ 3.50	3.50	3.75@ 4.75	4.00@ 4.10	**4.00@ 5.00**	4.00@ 4.10
Buckwheat No. 1	Philadelphia	2.14	2.75@ 3.25	3.50	4.00@ 4.50	4.00	**5.00**	4.00
Rice	New York	2.22	2.00@ 2.50	2.50	2.50@ 3.00	2.75@ 3.00	**3.00@ 3.25**	2.75@ 3.00
Rice	Philadelphia	2.14	2.00@ 2.50	2.50	2.25@ 2.75	2.75@ 3.00	**2.50@ 2.75**	2.75@ 3.00
Barley	New York	2.22	1.50@ 1.85	1.50	1.75@ 2.25	1.50@ 2.00	*1.75@ 2.00*	1.50@ 2.00
Barley	Philadelphia	2.14	1.50@ 1.75	1.50	1.00@ 1.75	2.00	1.00@ 1.75	2.00
Birdseye	New York	2.22	.....	2.00@ 2.50	.....	2.10	.....	2.10

* Net tons, f.o.b. mines. † Advances over previous week shown in **heavy type**, declines in *italics*.

Lake dumpings during the season were 19,330,860 net tons—18,501,055 tons cargo and 829,805 tons vessel fuel—as compared with 23,171,449 tons in 1921.

The all-rail movement to New England increased to 3,491 cars during the week ended Dec. 16, as compared with 2,872 cars during the preceding week. Central Pennsylvania is finding a better market in that section because of the rising of coastwise coal from Hampton Roads.

Dumpings at Hampton Roads were 300,552 net tons during the week ended Dec. 21, as compared with 257,326 tons in the preceding week. Supplies are divided among many houses, making cargo sales difficult. Shippers find that Western consumers are willing to pay high for Southern coals and this necessitates increases at the Roads to obtain tonnage from the mines.

ANTHRACITE

Production of anthracite during the week ended Dec. 16 was 2,197,000 net tons, the highest week's output in 1922. Early returns for last week indicate a diminished rate, with a probable total of 2,000,000 tons.

Buffalo dumped 1,070,680 tons of Lake coal during the season, as compared with 3,810,315 tons in 1921. December dumpings of 123,600 tons were heavier than expected. The Northwestern States must look to all-rail sources for a considerable tonnage to eke out this winter's needs and already some of them have requested Washington to authorize a priority movement of 250 cars per day of all-rail anthracite.

COKE

Beehive coke production was 298,000 net tons during the week ended Dec. 16, 7,000 tons more than in the preceding week. Connellsville production established a new high record for the year.

Eastern demand for Connellsville coke for domestic use has taken the situation out of the hands of the blast furnaces and foundries because of the higher prices being paid. The sudden shift of the market has suspended many contract negotiations for the first quarter, as operators now feel that they want their tonnage free to apply against the more attractive open market.

Car Loadings, Surplusages and Shortages

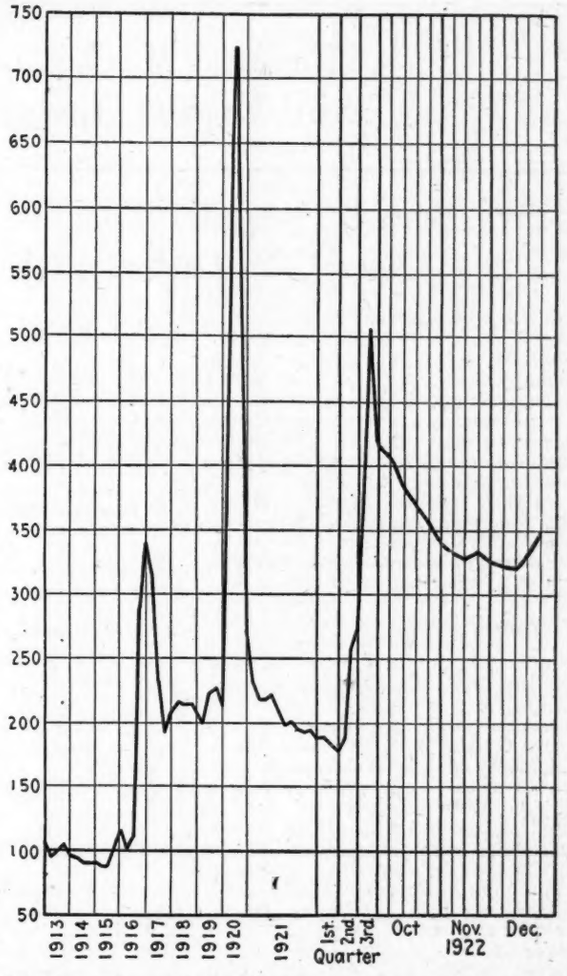
	Cars Loaded	
	All Cars	Coal Cars
Week ended Dec. 9, 1922	919,828	200,505
Previous week	845,219	186,158
Same week in 1921	741,341	138,215

	Surplus Cars			
	All Cars	Coal Cars	Car Shortage	
Dec. 8, 1922	6,657	.....	111,961	37,613
Nov. 30, 1922	5,595	.....	133,786	42,848
Same date in 1921	340,000	160,000	.....	.....

$1,000,000 Damage Suit Against U. M. W. Continued in Next Term of Court

The case of the Willis Branch Coal Co. against the international organization of the United Mine Workers, for $1,000,000 damages, set for trial in the U. S. District Court for the southern district of West Virginia at this term, has been continued until the next term of court. The company claims the above damages in connection with the destruction of its mining plant at Willis Branch, for which it alleges members of the United Mine Workers organization were responsible. The company bases its claim on the Coronado decision of the U. S. Supreme Court and contends that under the terms of that decision the miners' union is responsible for the acts of its members. The entire town was destroyed by members of the organization, it is alleged by the plaintiff in this case. Continuance followed an agreement between the parties to the suit.

JOHN HAYS HAMMOND HAS OUTLIVED the South African judge who sentenced him to death after the Jameson raid. That magistrate, who had acquired the title of "the hanging judge" died last week, according to press dispatches.



Coal Age Index 349, Week of Dec. 26, 1922. Average spot price for same period, $4.23. This diagram shows the relative, not the actual prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the U. S. weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board.

How the Coal Fields Are Working

Percentages of full-time operation of bituminous coal mines, by fields, as reported by the U. S. Geological Survey in Table V of the Weekly Report.

	Six Months July to Dec. 1921	Jan. 1 to Apr. 1, 1922 Inclusive	Sept. 5 to Dec. 9, 1922 Inclusive	Week Ended Dec. 9, 1922
U. S. Total	45.6	55.7	....	....
Alabama	63.5	64.6	84.4	85.7
Somerset County	55.5	74.9	36.2	42.5
Panhandle, W. Va.	55.3	51.3	57.0	61.8
Westmoreland	54.9	58.8	68.7	54.7
Virginia	54.8	59.9	56.8	50.0
Harlan	53.3	54.8	21.5	25.1
Hazard	51.7	58.4	16.7	18.1
Pocahontas	49.8	60.0	36.7	48.0
Tug River	48.1	63.7	27.3	47.4
Logan	47.6	61.1	25.7	26.7
Cumberland-Piedmont	46.6	50.6	32.4	25.2
Winding Gulf	45.7	64.3	30.6	30.0
Kenova-Thacker	38.2	54.3	42.1	42.9
N. E. Kentucky	32.9	47.7	28.0	(a)
New River	24.3	37.9	31.0	31.6
Oklahoma	63.9	59.6	52.8	64.7
Iowa	57.4	78.4	73.4	80.4
Ohio, Eastern	52.6	46.6	42.3	39.7
Missouri	50.7	66.8	74.1	86.2
Illinois	44.8	54.5	49.9	49.1
Kansas	42.0	54.9	53.9	53.9
Indiana	41.4	53.8	37.7	(a)
Pittsburgh†	41.2	39.8	42.1	40.7
Central Pennsylvania	39.1	50.2	55.3	52.4
Fairmont	35.3	44.0	34.1	42.1
Western Kentucky	32.5	37.7	32.8	24.9
Pittsburgh*	30.4	31.9	56.5	55.8
Kanawha	26.0	13.0	15.3	11.4
Ohio, southern	22.9	24.3	38.3	34.7

* Rail and river mines combined.
† Rail mines.
(a) No report.

Foreign Market And Export News

Heavy British Output Finds Ready Market; New U. S. Orders Placed

The South Wales coal industry is in stronger position than it has been throughout the year. Demand is exceptionally heavy and nearly all prices have been advanced. The South American requirements are heavy and South Wales is no doubt benefiting from the absence of the United States as an active competitor for the trade with the Atlantic coaling depots and the South American countries. France is also an active buyer and Italy is inquiring for approximately 600,000 tons. Last week the United States placed orders for 150,000 tons, delivery over the first half of 1923.

British production apparently knows no limit. The output during the week ended Dec. 9 was 5,592,000 gross tons, according to a cable to *Coal Age*, exceeding the preceding week's output, a record for the year, by 20,000 tons.

Shipments at the Welsh ports continue to show very great pressure. Until the three-shirt system can be secured at the docks, it will be impossible to cope with this. Wages of the Welsh miners for December remain at the minimum of 28 per cent above the standard of 1915. October results show that the colliery owners, in order to make up the minimum wages, had to sacrifice a considerable sum out of their standard profits.

French Miners Again Seek Raise

Owing to the failure of Belgian collieries to make the deliveries expected from them, the domestic demand remains much larger than can be met from the output of the Nord and Pas-de-Calias. All sorts of industrial coals are the object of a good demand, especially gas coals, steam peas and washed smalls. In some cases, inferior coals—more easily procurable—are mixed with coals of a better quality.

Coking slacks have become extremely rare, and the recent starting of several coke oven batteries in the Pas-de-Calais has more than absorbed the available supplies.

French miners are starting an agitation for an increase of wages. The French National Federation of Miners has just written to the Minister of Labor, asking for a raise of wages based upon the increase in living costs and the recent improvement in the French mining industry from the point of view of financial results.

Hampton Roads Pier Situation

	Week Ended— Dec. 14	Dec. 21
N. & W. Piers, Lamberts Pt.:		
Cars on hand	529	638
Tons on hand	35,071	40,185
Tons dumped	107,367	112,801
Tonnage waiting	10,350	17,350
Virginian Ry. Piers, Sewalls Pt.:		
Cars on hand	928	814
Tons on hand	50,950	46,600
Tons dumped	77,571	96,078
Tonnage waiting	14,800	23,301
C. & O. Piers, Newport News		
Cars on hand	479	619
Tons on hand	23,950	35,000
Tons dumped	44,818	59,471
Tonnage waiting	16,493	3,320

Scattered Supplies Boost Roads Price

Increasing car shortage, with consequent diminishing supplies, featured the market last week. This condition occasioned a stiff advance in prices, and inquiries were received on a scale which had not obtained for several months. Supplies were so scattered, however, that little business was being done.

Total coal dumped at Hampton Roads during 1922 was 14,800,880 tons, with the last ten days in December estimated. The dumpings for 1921 amounted to 17,246,848 tons.

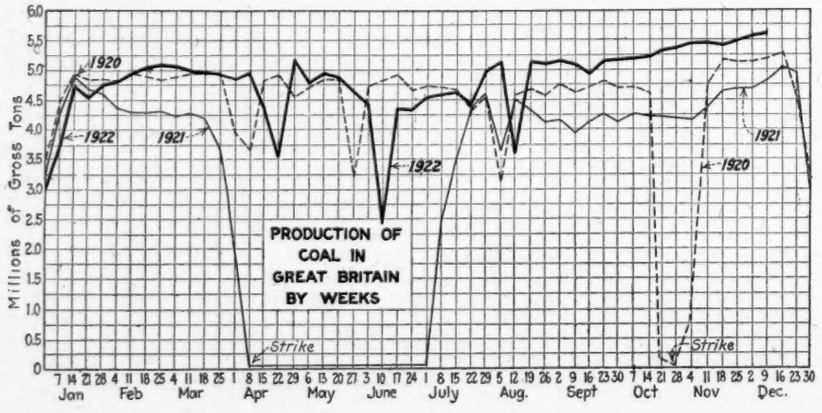
Germany Would Cut Coal Imports

It had been expected that the depreciation of the mark and the slightly declining employment of industry would materially reduce the coal import during October. Such hopes, however, have been only partly fulfilled. The total imports were 2,295,371 tons and exceeded the preceding month on account of the increased supply from Polish Upper Silesia. Only the most expensive coal, from Great Britain, declined. These were 918,598 tons in October, or 142,203 tons less than in the preceding month, but still 82,000 tons more than in the corresponding month of 1913.

Approximately 1,500,000 tons were delivered to the Reparation Commission during October. Also, 203,321 tons of German coal were exported.

The output of the Ruhr Valley for November is estimated at 8,600,000 tons for twenty-four working days, as compared with 7,800,000 tons for the same number of days in November of last year. The daily production in the Ruhr was the highest shown in available statistics, at least since April, 1921, the average last month being 356,000 tons, as compared with 339,505 in October.

The increase is attributed to the greater amount of overtime labor and the use of large working shifts. The daily production in October, 1913, was 366,484 tons.



Export Clearances, Week Ended Dec. 21, 1922

FROM HAMPTON ROADS

For West Indies	Tons
Nor. SS. Fram, for Bridgetown	4,081
For Cuba	
Amer. Schr. Dorothy, for Cienfuegos	1,060
Nor. SS. O. A. Knudson, for Havana	5,612

FROM PHILADELPHIA

For Cuba	
U. S. SS. Lake Elmhurst, for Havana	....
For Porto Rico	
U. S. SS. Sioux, for San Juan	....

Pier and Bunker Prices, Gross Tons

	Dec. 9	Dec. 16†
PIERS		
Pool 9, New York	$8.00@$8.25	**$8.50@$8.75**
Pool 10, New York	7.40@ 7.75	**7.50@ 8.00**
Pool 11, New York	6.75@ 7.25	**7.00@ 7.50**
Pool, 9, Philadelphia	7.80@ 8.10	**8.10@ 8.30**
Pool 10, Philadelphia	7.30@ 7.50	**7.60@ 7.80**
Pool 11, Philadelphia	6.65@ 6.85	**7.00@ 7.25**
Pool 1, Hamp. Roads	7.75@ 8.00	**8.25@ 8.50**
Pools 5-6-7 Hamp. Rds.	7.75	**8.25**
Pool 2, Hamp. Rds.	7.75@ 8.00	**8.25@ 8.50**
BUNKERS		
Pool 9, New York	8.40@$8.70	**$8.90@$9.15**
Pool 10, New York	7.80@ 8.15	**7.90@ 8.40**
Pool 11, New York	7.15@ 7.70	**7.40@ 7.90**
Pool 9, Philadelphia	8.15@ 8.35	**8.35@ 8.65**
Pool 10, Philadelphia	7.65@ 8.05	**8.00@ 8.25**
Pool 11, Philadelphia	6.85@ 7.15	**7.15@ 7.50**
Pool 1, Hamp. Rds.	7.75@ 8.00	**8.25@ 8.50**
Pool 2, Hamp. Rds.	7.75@ 8.00	**8.25@ 8.50**
Welsh, Gibraltar	38s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro	57s. 6d. f.o.b.	57s. 6d. f.o.b.
Welsh, Lisbon	50s. f.o.b.	50s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Genoa	42s. t.i.b.	42s. t.i.b.
Welsh, Algiers	38s. f.o.b.	38s. f.o.b.
Welsh, Pernambuco	65s. f.o.b.	65s. f.o.b.
Welsh, Bahia	65s. f.o.b.	65s. f.o.b.
Welsh, Madeira	40s. 6d. f.a.s.	40s. 6d. f.a.s.
Welsh, Teneriffe	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Malta	41s. f.o.b.	41s. f.o.b.
Welsh, Las Palmas	38s. 6d. f.a.s.	38s. 6d. f.a.s.
Welsh, Naples	39s. 3d. f.o.b.	39s. 3d. f.o.b.
Welsh, Rosario	52s. 6d. f.o.b.	52s. 6d. f.o.b.
Welsh, Singapore	50s. t.i.b.	50s. t.i.b.
Welsh, Constantinople	50s. f.o.b.	50s. f.o.b.
Welsh, St. Michaels	50s. t.i.b.	50s. t.i.b.
Welsh, Port Said	49s. f.o.b.	49s. f.o.b.
Welsh, Oran	38s. f.o.b.	38s. f.o.b.
Welsh, Fayal	50s. t.i.b.	50s. t.i.b.
Welsh, Dakar	42s. 6d. f.o.b.	42s. 6d. f.o.b.
Welsh, St. Vincent	42s. f.a.s.	42s. f.a.s.
Welsh, Montevideo	50s. f.o.b.	50s. f.o.b.
Welsh, Alexandria	43s. f.o.b.	*42s. f.o.b.*

Current Quotations British Coal f.o.b. Port, Gross Tons

Foreign Quotations by Cable to *Coal Age*

Cardiff:	Dec. 16	Dec. 23†
Admiralty, large	28s.@28s.9d.	**28s.@29s.**
Steam, smalls	16s.6d.@18s.6d	**17s.6d.@18s.**
Newcastle:		
Best steams	25s.6d.@26s.	*25s.*
Best gas	24s.@25s.	*24s.@24s.6d.*
Best bunkers	22s.6d.@23s.6d	*22s.@23s.*

† Advances over previous week shown in **heavy type**; declines in *italics*.

North Atlantic

Market Rises Rapidly; Better Grades Scarcer

Many Firms Withdraw Quotations—Intermediates Advance Steadily—"Anything Black" Sells Readily—Future Trading Light—Strong Call for Domestic Soft Coal.

The market moved upward very rapidly last week. Better grades are well sold and many houses have withdrawn their quotations. This has caused a growing scarcity and the intermediates are steadily advancing. "Coal is coal" in Baltimore, New York and other large centers and "anything black" is fast finding a quick market. Buyers are seeking price indications for January delivery, but future trading is rather light and uncertain.

Domestic soft coal is in strong call as a substitute for anthracite. There is already a scarcity of the screened sizes, shippers being unable to meet the sudden demand. Some orders for British coal for January delivery have been closed.

BALTIMORE

Very little coal is coming in, the railroads having fallen down miserably in the matter of supplying empties to the mines, and the demand has advanced by leaps and bounds. The larger consumers of this section were particularly active in trying to get coal the past week and few secured as much as they sought. Some of the smaller industries too are almost without coal.

The best grades of steam coal are practically off the market. The scarcity of intermediate coals is such that when offered they are gobbled up at $5. The market is one in which anything black can be sold. Gas coal is equally as tight as to scarcity.

While there are no importations of English coal here at present, the sharply advancing market of the past week or two gave a ready demand at high prices for some of the Welsh product that was stored near Baltimore. The lump from this pocket, in view of the scarcity of anthracite, has sold to retail dealers up to $14.

NEW YORK

The market moved rapidly last week. Business picked up and the recent loss in prices was more than made up. There is a constant demand for the better grades and when they cannot be obtained buyers fall back on the lower grades, which with increasing scarcity have steadily advanced in prices.

Many operators are refusing further orders and in some instances quotations have been withdrawn. With the holiday season at hand during which most of the mines will be idle for a couple of days at least, it is expected that the railroads will be able to clear their roads and that when the mines do resume operations there will be plenty of empties for at least a few days.

The using of bituminous coal as a substitute for anthracite has added considerable to the present demand. It is being used heavily in apartment and other dwellings in New York. Screened coals are in active demand, shippers not being able to meet the call.

There is a report here that agents are busy placing orders for British coal to help out on the anthracite shortage. Arrivals of foreign coal here during the past week were negligible. It is understood however, that several orders have been closed for January shipments, some of which have been placed by public utility corporations.

Coke is in heavy demand, some dealers having difficulty in supplying call for it. Run of oven coke was quoted around $7.50, and prepared, $10@$10.25.

CENTRAL PENNSYLVANIA

Operators and miners are having a hard time making both ends meet in the midst of the great demand for coal. Operators, generally, are working but one or two days a week and miners are not making a living. As a result of the acute car shortage, producers are not accepting orders as they know they cannot make prompt delivery. Prices are gradually going up.

The situation is said to be aggravated through the storing of large quantities of coal on wheels, as is usually the custom of the railroads at this time of year, in anticipation of severe weather. The Central Pennsylvania Coal Producer's Association is authority for the statement that no relief is expected before March 1. To make matters still worse, considerable coal is being thrown on the market by the Bethlehem, Cambria, and other large steel companies with operations in the district.

PHILADELPHIA

Consumers are now considerably stirred by the slow deliveries and have come into the market very strongly for additional supplies. No doubt much of this anxiety is occasioned by the usual slowing down of production due to the holiday season. Many of those who have been buying from hand to month are once more bidding for coal and stiffening prices to just that extent.

The demand for soft coal in the Eastern domestic market grows, the one great difficulty being to make shipments. Shippers of the better class coals feel confident that their product having already made good they will be able to retain some of this trade even during normal times. This seems particularly likely among the larger consumers of domestic coal such as apartment houses and hotels. There has also been developed a good domestic market on coke. Practically all byproduct coke is well sold in advance and as a result much Connellsville coke is being shipped.

Prices on soft coal of all grades has materially strengthened and at times the quotations on Pools 1, 9 and 10 are so closely grouped as to show little difference, depending on the eagerness of the purchaser for immediate deliveries.

FAIRMONT

Heavier demands have been made upon the mines as a result of more active buying in Eastern markets, to be attributed in part at least to the substitution of bituminous coal for anthracite in some sections. Mines are still greatly handicapped by a car shortage though production is on a larger scale in the northern part of the state. Mines loading railroad fuel continue to receive the bulk of the car supply.

UPPER POTOMAC

Though the strike still continues in the Georges Creek field with Lonaconing the stronghold of the men remaining out, yet it is gradually disintegrating and at Frostburg and other places mines are able to increase their production. Upper Potomac production is not on quite so large a scale as it was about the middle of November. The demand has picked up somewhat. Pool 18 is bringing $2.35@$2.50 and Pool 11, $2.50@$3.

West

KANSAS CITY

Those firms which did not announce an increase in the price of Kansas coal Dec. 14, fell in line the following Monday. Since Dec. 18, all Kansas City dealers have been quoting Kansas lump and nut 50c. higher, and mine run 25c. higher than the season's low prices, established Oct. 22.

The demand, which was more or less revived by the threat of cold weather the first of last week and the latter part of the preceding week, took another slump when the mercury again shot upward.

SALT LAKE CITY

Retail business is good locally as a result of the colder weather. There is a big run on lump, but smaller sizes are expected to move faster soon. The car supply is satisfactory. Mines are working about four days a week which is all the market will stand.

Canada

TORONTO

Owing to severe weather the demand for anthracite is greatly increased. Only small quantities are being received and where orders have been taken, deliveries have been much delayed. Many householders are using soft coal or coke. The rule has been generally adopted by the dealers that 25 per cent of the coal purchased must be bituminous, and this percentage will probably be increased.

There is no scarcity of bituminous quotations, which are as follows: Retail; steam lump, $13.25; domestic lump, $13.50. Wholesale; f.o.b. cars at destination, ¾-in lump, $8.50@$9.25; Pennsylvania smokeless, $8.25.

Anthracite

Scramble for Domestic Raises Independent Prices

Action of Spens Halts Bidding Up by Canadian Buyers—Retail Stocks Low —Substitutes in Demand at Mounting Prices—Smaller Steam Sizes in Good Position.

The domestic shortage increased further last week and the meager supply caused a scramble for tonnage which has raised independent quotations. Canadian buyers, who have been bidding the market up, have received a setback in the warning of Federal Fuel Administrator Spens that this movement must be discontinued, temporarily at least, because of the shortage in the United States.

Retail stocks are very low. Many yards are almost out of substitutes. Bituminous coal, coke and anthracite buckwheat are in strong demand and prices have mounted. The smaller steam sizes are now in good position and little if any are being sold below company schedules. River coals may soon reappear because of the strengthening steam prices.

NEW YORK

With the opening of forty-nine "peddler coal" stations in various parts of Greater New York those users of the domestic sizes who buy in small lots are being kept supplied. It is, however, apparent judging from the way the buyers go to these stations that the need of coal is not so acute as it has been pictured. Contrary to expectations there was not the rush expected, but there was heavy buying. The coal distributed to the peddler's stations is being sold at 70c. per 100 lbs.

The companies and larger independents are prorating their coal among their regular customers and are being urged for larger shipments. Supply is entirely too small to meet the demand. The supply of substitutes is growing smaller, while those users of the domestic sizes who always put in enough coal to last them until shortly after the New Year are now realizing that they will have to resort to the use of substitutes when their present supply is exhausted.

Buckwheat, which was almost a drug here until placed in the list of substitutes, is growing scarcer. Alongside quotations in this harbor ranged around $8.75 late in the week. Rice is the easiest of the three coals.

BOSTON

The retail trade is barely subsisting on hand-to-mouth supplies both all-rail and by water. Even the largest distributors are able only by skillful management to have any domestic sizes on hand when successive cargoes arrive. The unfavorable weather along the coast has very much interfered with water movement and the next few weeks are bound to be a critical time in anthracite.

The folly of recent interference with car supply on certain of the hard coal roads is beginning to be apparent to all. One of the great arteries of supply to this territory is the water route from Philadelphia, and already there are signs that service via this route will be crippled through insistence that cars be sent all-rail.

BUFFALO

The only encouragement is that when the Lakes closed the amount turned in for city use came up till the emergency orders are now about all filled. If the receipts continue the feeling will soon be quite easy, though nobody looks for an adequate supply till the winter begins to go.

At the same time the independent price runs up, some mines refusing to sell for less than $14.50, to which must be added at least $3.28 for freight and perhaps $2 more for carting. If the jobber gets anything the consumer must pay $20 or more a ton.

The Lake trade closed on Dec. 15 with the loading of the steamer A. B. Uhrig for Milwaukee. The amount loaded is 1,070,680 tons for the season. A big effort was made to continue the movement later and 123,600 tons was loaded in December, which is the largest amount for a long time. The shipments for the season of 1921 were 3,810,315 tons. This leaves nearly 2,700,000 tons for the upper district to make up.

PHILADELPHIA

The market continues to be short and there is something akin to a scramble on the part of the consumer to get coal. The shippers claim that their shipments to the city are fully up to the allotments based on a production of seven months.

Normal winter weather still prevails and therefore the consumption of fuel is heavy. Certainly the situation would not have been met as well as it has were it not for the growing use of soft coal and coke. Unfortunately, the deliveries of soft coal are very much delayed, but the movement of coke seems better for some reason and almost every dealer is now carrying both fuels in stock. Coke prices are running $13.50@$18 per net ton.

On such shipments of anthracite as are received the trade is experiencing much trouble with shortages. Most every car received shows evidence of having been robbed, and when complaint is made a considerable delay in delivery ensues until the railroad can reweigh.

Buckwheat has even grown stronger in demand than last week and spot prices run all the way from company figure of $4 up to $5; in fact many dealers who delayed purchases of this size would gladly pay the latter figure to get the coal. Much of the slack has now been taken up in rice and barley and it is doubtful if any of this size can now be bought below $3 and $2 respectively. Under these conditions it seems likely that river coal will soon be actively on the market again.

BALTIMORE

Many yards were left without supplies to distribute. Household burning of soft coal and even wood is on the increase. The Maryland Fuel Distribution Commission charges that Baltimore's share under the allotment promised through the Pennsylvania committee is not being delivered.

The following figures are given out by the local commission on the shipments to Baltimore since the arrangement began in mid-September, the receipts being for the week ending on the days given: Sept. 23, 15,889 tons; Sept. 30, 12,123 tons; Oct. 7, 10,176 tons; Oct. 14, 13,722 tons; Oct. 21, 11,940 tons; Oct. 28, 11,862 tons; Nov. 4, 6,796 tons; Nov. 11, 13,536 tons; Nov. 18, 12,839 tons; Nov. 25, 13,509 tons; Dec. 2, 13,425 tons. The entire allotment for the period from Sept. 1, 1922 to March 23, 1923 is 369,691 tons.

A situation which faced the trade here during the past week was that a number of smaller yards who supply coal to the poorer sections had neither hard nor soft coal to dispose of. In this emergency the city provided Welsh coal at three of its storage yards and disposed of this fuel at 65c. a bushel.

South

BIRMINGHAM

Demand in the spot market is easy, consumers in general continuing to buy scantily and only to meet current needs. The railroads are the only interests which have bought any extra coal for stocking and use during the balance of the year, supplementing contract deliveries, which have been somewhat in arrears due to car shortage.

The last few days of cool weather has strengthened the domestic market to some extent though inquiry is not very insistent, considering the season and the fact that little or no stocks are carried on yards in the territory. Consumers buy a ton or two at a time as weather conditions necessitate, a vast number of householders having stocked no winter supply. Spot and contract requirements about equal the production and there is no surplus coal of either grade.

Although inquiry is comparatively light this condition has not served to weaken prices and quotations have been practically stable for the last several weeks, the minimum for mine run being $2.50. The general price range is the same as shown in our last report.

Car supply has shown no improvement with the exception of the Southern, which is now giving some better service and mines served by it have been operating more regularly. The situation on the Frisco and L. & N. is reported unimproved.

VIRGINIA

Transportation conditions are somewhat more conducive to a larger production though the increase has been small. In view of general market conditions and a stiffer demand in the East a larger production would be possible. Some mines, in order to avoid a suspension when empties are not available, are utilizing their product in the making of coke so that coke production continues at about 14,000 tons a week.

Chicago and Midwest

Market Freshens Over Entire Midwest Region

Run of Cold Quickly Exhausts Dealers' Supplies — Even Steam Consumers Buy Now—Prices Stiffen Noticeably and Transportation Weakens.

The whole Midwest experienced a real stimulation of the coal market during the past week. All signs of sagging disappeared after the run of zero weather began to make itself felt. Dealers who thought they were stocked against a month's trade, sold their yards empty so swiftly that a near-rush for all sorts of domestic coal started. It could not be satisfied because the cold had the simultaneous effect of hampering railroads. This got big steam and gas coal consumers worked up and they, too, leaped nimbly into the trading. Naturally prices started upward.

In some cases domestic lump hiked as much as 75c. a ton though the big companies in the southern Illinois field maintained their circular of $5.50 with a good deal of conscientiousness. Steam coals executed various upward leaps. Screenings got so scarce from one or two of the best-known fields that the producers were unable to fill more than half their contract requirements and boosted their screenings prices ridiculously in order to discourage spot buyers. Even this did not stop orders from men who were solemnly assured they could not expect deliveries quicker than the middle of January.

CHICAGO

The general stir in this market caused by cold weather had exactly the effect that wise observers prophesied some weeks ago. First the winter throttled down railroad motive power, thus reducing car supply to mines. Simultaneously it brought dealers and a large number of medium-size consumers dashing into the market for coal, demanding shipments instantly and generally upsetting things. Naturally, with a smaller flow of coal than previously was available, prices stiffened. Practically all southern Illinois lump is now bringing the top at $5.50; central Illinois hopped from an average of $4 to $4.50 and other coals followed suit. Screenings bounded upward 50c. and even $1 in some instances, for the "considerable stocks" theoretically on hand at big steam plants seemed exhausted. Even gas concerns were caught short.

Domestic sizes were in such demand that every shipper sold everything with ease and producers of the highest grade coals refused orders. Very little Pocahontas coal of any size is reaching here, and, although one shipper with excellent rail connections has been moving a good deal of anthracite here, yet many a householder has turned to soft coal for the first time in his life, thus expanding, as never before, the demand for Illinois and Indiana lump and egg. This, on top of car supply averaging only 60 per cent in central Illinois, 30 in Indiana and 25 to 30 in southern Illinois, is enough to push domestic prices upward distinctly.

ST. LOUIS

Colder weather has kept up the domestic demand in small quantities for the cheaper grades in the city proper and has stimulated business to some extent in the surrounding territory. Steam coal in wagonloads is in good demand in St. Louis. Carload shipments are just about even with the supply. A little anthracite is coming in but no smokeless coals. Some coke is available and is finding a ready market. Steam business outside the city is slow. With continued cold weather business ought to be in pretty good shape within a week.

WESTERN KENTUCKY

Transportation has let down badly the past few days, especially in this field, where car supply as a whole has been fair for some weeks past. Up to Dec. 16 supply had been 20 per cent on the L. & N. lines, and 30 per cent on the Illinois Central but it is claimed that the week of Dec. 19, has shown the poorest car supply in weeks, there having been very few cars on Monday, Tuesday or Wednesday.

This poor car supply along with demand on account of cold weather, and in view of the usual reduction of production over the holidays, is resulting in higher prices. Lump coal recently selling at $3.50@$4, is $4.25@$5. Mine run which was selling at $2@$2.50, is now $3.25@$3.50 and screenings at$2@$2.50, with some holders asking $2.75@$3, as supplies are scarce and demand good. Indications are for a stiffer market until the middle of January, with price after that time largely a question of transportation and weather conditions.

LOUISVILLE

Car supply in Kentucky was quite poor during the week ended Dec. 18, while demand due to colder weather and a desire to stock over the holidays, is resulting in prices advancing, as there is not much coal uncontracted. Prices are largely a question of how badly the buyer wants it, and how many bids the seller is receiving. Trading is in car numbers again.

Railroad consumption is better, while retail demand is much keener, and there is a fair demand from gas plants, public utilities, industries and the general list. While buying is not heavy it is for short-time use, with the general belief on the part of buyers that any advances will be but temporary.

Jobbers and producers are of the opinion that there may be better production during the holidays than usual due to the fact that many miners have been working on such short time that they won't be as willing to take holidays as is usually the case. With cold weather and reduced production, indications point to fairly stiff prices for the next two or three weeks, or until the middle or latter part of January. It is claimed that the local market is not as strong in price as Nashville and Indiana points on the same fuels. Screenings are scarce and in demand at higher prices. Mine run is only in fair demand.

SOUTHERN ILLINOIS

Colder weather brought increased activity in all sizes. What was a surplus last week is a shortage this week. There is a good demand for everything. Even steam coal moved up in demand. Railroad tonnage shows increases in the Carterville district. Coal from this field is firm at $5@$5.50 on domestic sizes, and moved up to $3 on screenings.

Car supply is unusually bad. The Illinois Central averages just a little better than one day a week. The Missouri Pacific is in bad shape and even the Burlington is not maintaining its standard. The movement of loads and empties is poor. Similar conditions prevail in the Duquoin field where the Illinois Central car supply has seriously crippled the tonnage.

Movement from the Mt. Olive field would be good if cars were available, but between poor railroad management and short-sightedness on the part of operators the tonnage has diminished except on some steam sizes which are a little bit hard to move. Four dollars for domestic sizes for St. Louis and $4.50 for the country prevail, with steam nut and screenings at $2.25@$2.50.

In the Standard district car shortage has put a crimp in everything. The Illinois Central has simply gone to pieces, the Louisville & Nashville is in bad shape and the Pennsylvania is in worse shape now than it has been for many months. There is a good demand for all sizes of standard coal except steam nut which is a little slow. Screenings are worth $1.50. Two-inch lump moved up to $3@$3.25, while 6-in. lump is $4@$4.25. Steam nut and egg range around $2.25. Railroad tonnage is good but prospects for work during the holidays is not encouraging.

INDIANAPOLIS

Weather hovering around the zero mark for three days the first part of the last week did a lot for the coal business. Both domestic and industrial demand brightened up, though there was no appreciable change in prices except 25c. advances on some domestic grades. The last week has been a growing scarcity of Pocahontas in this territory. Some wholesale dealers reported deliveries were very slow on all grades of Kentucky and West Virginia coal. Many Indianapolis retailers reported themselves as entirely out of some grades. However, there has been nothing that might be called a shortage.

The increasing use of Indiana coal for domestic purposes is quite noticeable. While there has been a slight increase in demand from the industrial users this is not attributed to the fact that they are laying in any reserves, but to a gradual expansion in production.

Eastern Inland

All Grades Show Strength; Storms Cripple Railroads

Retail Yards Getting Barer and Orders Gaining—Pocahontas Grades Scarce —Industrials Insist on Quick Delivery —Sizable Premium Obtained for Prompt Coal.

All grades of coal have strengthened with the colder weather. The car shortage is most acute and motive power has been dealt a hard blow by the severe storms of the last two weeks.

The slow car movement has drained the retail yards and replenishment orders are gaining in volume daily. Pocahontas grades are very scarce. Industrial buyers, alarmed by meager offerings and slow receipts, have entered the market, insisting on quick delivery. This buying of car numbers has boosted the market to such a point that a considerable price differential exists between prompt coal and tonnage that users are willing to buy before it is loaded.

CLEVELAND

An acute shortage of domestic coal is seen as a probability as retail yards find shipments from the mines held up by the serious car shortage. Public utilities have been making some purchases, and irregular buying is being done by the iron and steel plants. Industrial operations remain surprisingly broad for this time of the year. The usual slowing down of big enterprises for inventories is relatively small, especially operations of iron and steel, automobile manufacture and building.

The steel mills have been stocking coal and most of them now have fairly large supplies. Little price softening has resulted from the absorption of Great Lakes tonnage. Some stiffening of quotations on West Virginia coal has devoloped within the last few days. Eastern Ohio lump also has advanced about 25c.

Difficulty has been found by coal dealers in getting domestic consumers to substitute bituminous coal and for Pocahontas, which users have been accustomed to burning. Gradually, however, domestic users are placing orders for bituminous coal as they realize the difficulty of getting coal from West Virginia because of the railroad situation.

DETROIT

There is some buying being done, but it is apparently in an irregular way and without regard to the desirability of accumulating reserves. The orders coming from industrial plants are of small proportions and seem to be an effort to provide for present needs without regard to requirements very many days in the future.

Instead of the shipments to Detroit increasing in bulk with the close of Lake navigation jobbers report that there is apparently a reduction in receipts, which results from the transfer of cars to other lines of business and is brought about also by lowered efficiency of transportation facilities in the extremely cold weather recently prevailing. Embargoes on various coal-handling roads, also, are a factor in cutting down receipts.

Hocking lump is quoted at $5.50, with a freight charge of $2.18 to be added; egg is $5; mine run, $3, and nut, pea and slack, $2.90. With the same freight charge, Pittsburgh No. 8, lump is offered at $4.25; mine run, $3.25; slack, slack $3.

EASTERN OHIO

Due to the most acute car shortage of the past year, this district produced only a minimum tonnage during the week ended Dec. 16. Output was 288,000 tons, or about 45 per cent of of the present rated capacity, registering a decrease under the preceding week of 60,000 tons.

It is reported that on the B. & O. there were no cars whatever available for loading commercial coal during half of the week, and that transportation conditions on the other roads were not much better. Heavy snow storms during the week, coupled with lowering temperatures, apparently had disastrous effect upon the inadequate motive power of the roads. Another factor also contributing to transportation disability is that since the close of Lake navigation the mines are loading coal to more distant destinations thereby necessitating a greater transportation service. Congestion of the Toledo gateway and paralysis of rail movement in the lower Michigan peninsula due to the severe weather also affected adversely the car supply at Ohio mines.

Despite restricted mining operations generally, Cleveland industries and retail yards during the week ended Dec. 16 received the largest quantity of bituminous coal on record. Total arrivals were 3,050 cars, 2,270 for industries and 780 for retail yards. Since Oct. 1 weekly receipts now average 2,240 cars, compared with 1,512 cars per week during first quarter, 1,022 during the second and an average of 791 cars per week for the third quarter of 1922.

In the Lake trade, a new mark was made for shipments from Sept. 1 to the end of the season when 13,350,794 tons were loaded, the year 1917 being nearest to approaching these figures with 12,502,772 tons.

COLUMBUS

With colder weather prevailing, all grades have strengthened materially. Buying for all purposes is active and with a still further decline in the car supply, higher prices are prevailing in every mining district.

Retail stocks are fairly good although the country territory reports low stocks in many communities. The low pressure of natural gas is causing a rush of domestic orders. Some advances have been reported.

Steam buying is now more general. Railroads are taking a good tonnage and the same is true of utilities and other large consumers. Manufacturers are now looking around to increase their reserves in view of a still further car shortage.

An embargo on shipments out of Toledo into Detroit was declared on all roads except the New York Central Lines and other embargoes are holding up shipments. A good deal of interruption in railroad service is also expected during the holiday week.

PITTSBURGH

Prices, which had become firm a week ago, have advanced sharply, partly from operators finding they were getting in arrears with their orders, and offering less coal in the market, and partly from the development of a considerable demand from the East. Relaxation of the distribution regulations on the railroads has facilitated the development of this Eastern demand.

Pittsburgh steam coal, which stood at $2.50@$2.75 a week ago, is now strong at $3@$3.25. Gas mine run, which was nearer $3 than $3.25, is rather strong at $3.25@$3.50. Domestic 1¼-in. lump remains at $4.50@$5 as the general market.

There has been a special call from the East for nut coal, but very little is offered, on account of car conditions. Car shortage has made it that the average mine does not wish to screen at all, as there must be three or four cars in hand at one moment. There has been, in fact, what amounts to an extra price for screening, in that slack, nut and lump, sold individually, bring considerably more than the same coal would bring when sold simply as mine run. Domestic coal is necessarily sold over a 1¼-in. screen, and what is left has been going largely as slack, while to produce nut would subdivide the screening operation farther.

BUFFALO

A few of the shippers claim to see a stir in the bituminous trade, but others say that it is at the best only temporary and some do not see any improvement. It is true that cars are scarce and the demand is a little better.

The slow movement of cars hampers the jobber, who does not dare to promise anything and does not often venture to buy coal unless it is already sold. A price that has not changed much lately is about the only favorable condition. The consumer still looks for lower prices.

Prices have not changed materially for several weeks. The rule has been a gradual weakening without much decline. Present quotations: $4.75@$5 for Youghiogheny gas lump; $4@$4.25 for Pittsburgh and No. 8 steam lump; $3.10@$3.35 for Allegheny Valley and other mine run and $2.75@$3 for slack. A little Pennsylvania smokeless is selling at about 25c. over the other.

NORTHERN PANHANDLE

Mines are finding a better market in the North than in the West, owing to a shifting of market conditions, and at the same time are experiencing less difficulty in making Northern shipments, owing to embargoes against the movement of anything but railroad fuel to some Western points.

Northwest

Brisk Weather Runs Up Market on All Grades

Screenings in Such Good Demand Again That Southern Illinois Brings $3—Lake Season Closes with Only Third Enough Anthracite In.

Winter for 10 days has proven that the strange coal market in the Northwest this fall has been largely a weather proposition. The strong rush on docks and rail shippers about the second day of the cold spell firmed up every price quoted on all coals, raised southern Illinois screenings to $3 in spots and restored lump from that field to $5.50.

The close of the Lake shipping season shows that only one-third of the normal volume of anthracite has arrived and that little over half the ordinary amount of total shipments were made. The grand totals were not all in at the end of the week. Anthracite on hand will be exhausted soon after Jan. 1 without much assurance of hard coal by rail. An advance in freight rates by boat to Duluth added 75c. a ton to Lake anthracite there.

MINNEAPOLIS

After a long mild fall and early winter, some real Minnesota winter descended upon this section. As a result, the local market which has been completely demoralized on screenings, has picked up notably. Prices have advanced sharply and various grades of Illinois screenings are now selling up as high as $3 at the mine, with orders 30 days behind. Central Illinois screenings are $1.65@$1.85. Prepared sizes range from $5.50 for the southern Illinois down to $3.50@$3.75 for central Illinois. All available coal finds a ready market. The docks are sharing in the strengthened situation. Dock coal is worth $9.50 firm for Youghiogheny and $9.25 for Hocking.

The hard coal situation is distressing. The season's receipts were about 560,000 tons—against about 1,800,000 tons for the season of 1921. Deducting the 400,000-ton carry-over, leaves a consumption for 1921-22 season of 1,400,000 tons. Counting the carry-over into this year's total there are only 960,000 tons for the 1922-23 season.

Already dock stocks are down to about 100,000 tons, and the heaviest of the winter consumption is still to come. A number of points have reported being entirely out of hard coal and in dire need of it. The stock on hand will be exhausted soon after the New Year. The fuel commissioner has been working for some time to get all-rail shipments to supplement the Lake receipts but without definite hope of success. So far as hard coal is concerned, the various promises and near-promises made, have been but a harmless poultice to allay irritation.

DULUTH

Hard coal, or what there is of it on the docks here has been advanced in price 75c. a ton. This is not because of the shortness of supply but rather because of the advance in Lake freight rates during the last week of navigation when the majority of the coal now for sale arrived. Egg is now selling at $13.25, stove at $13.65, nut at $13.50, pea at $11.75, buckwheat at $8.50, and anthracite dust at $4.

In view of the fact that substitutes are not proving satisfactory for use in base burners, coal men have decided to reserve what stocks are available here for use in those houses which are not supplied with furnaces.

Dealers here claim that consumers of hard coal are better off than in any other part of the country, because of the stocks which were on docks at the opening of navigation. It is claimed that many of the orders which were listed are being withdrawn, and that consumers had listed their orders with several different companies in the hope of getting coal from one.

Official figures showing coal receipts at this port for December and for the entire year have been made public. During this month 107,642 tons of hard coal arrived here and 193,247 tons of bituminous. A comparison of this year's receipts with last year's follows:

Year	Bituminous Tons	Anthracite Tons	Anth. screenings Tons
1922	5,138,934	544,487	21,875 (From Fort William, Ont.)
1921	8,320,207	1,844,642	

MILWAUKEE

Weather conditions necessitating maximum fuel consumption, are responsible for a lively coal market. Local delivery systems are taxed to the utmost, and shipments to the country are as liberal as the railroad conditions will admit. Prices have not been advanced, however.

Following investigation of a charge made at Oshkosh, Wis., that Milwaukee coal dealers were profiteering, Paul Pressentin, state fuel administrator, advised the complainants to do business only with brokers subject to regulation by the coal administration. He reports that responsible Milwaukee dealers are not charging excessive prices, nor have they disregarded restrictions imposed by the state coal authorities. Less than 25 per cent of the coal held at Milwaukee is from independent producers, which means that the price on the other 75 per cent will remain stationary.

Thirteen cargoes of anthracite and seven cargoes of soft coal represent December's coal quota by Lake. The hard coal approximates 87,000 tons and the soft coal 53,000 tons. Car-ferries brought considerable coal in December but the figures are unobtainable yet.

New England

Buying in Small Tonnages; Prices Continue to Harden

Inquiry Far from Brisk—Scarcity in High-Grade Low Volatile for Spot Shipment — Railroad and Industrial Reserves Tend to Prevent Price Ascent.

The current market shows a further hardening of prices. Inquiry is by no means brisk, and purchases thus far are only for small tonnages, and the volume of high grade low volatile available for spot shipment is undeniably meager. Ample reserves for the present on the part both of railroads and the larger industries are the chief factor in keeping prices from soaring, for it would need but a few comprehensive orders to give the market a decided push upward.

Medium grades of low volatile originating in central Pennsylvania have sold as high as $5.25 per net ton at the mines, the same coal having sold but a few weeks ago at not over $3.75.

As at present advised, buyers are extremely reluctant to buy in advance of actual need. Most contractors have been making deliveries reasonably well, and that has a bearing on the spot market. Offerings of Southern coals are extremely light both at the loading piers and at rehandling points like Providence, Boston, or Portland. December quotas of Pocahontas and New River have come forward and few of the usual consignees are as yet short of current supply.

There have been frequent delays recently in clearing coastwise transportation. Short car supply for east-bound movement is having its influence, but doubtless the chief factor is the attractive Western market for prepared coal. Certain of the agencies are making full deliveries on cargo contracts in this territory, however, and the Hampton Roads situation cannot be said to be as closely restricted as might appear.

For inland delivery from rehandling wharves at this end there has been a marked appreciation of prices. From a $9 level spot quotations have advanced to $10.25@$10.50 per gross ton on cars, due partly to a mild increase in demand.

Movement all-rail has slowed up materially during the past fortnight. Certain of the smaller districts in central Pennsylvania have been kept starved for cars four and five days a week and already there are bitter complaints from consignees who have coal due them on November spot purchases.

Cincinnati Gateway

Contract Talk Is Heard; Arouses Little Interest

Transportation Difficulties and Colder Weather Bolster Up a Falling Market at a Time When It Was Slipping Badly.

Somewhat earlier than usual, but not to be denied is the talk of contracts that can be heard in this area. It would appear that the takers of coal believe that there are sufficient business reasons why it would be advantageous for them to get under cover for three, six, or nine months, and some of them are even willing to make it for a year. Prices, however, are not much in accordance with the ideas of the producers. Generally speaking the prices hinted at are $3.50@$4 for smokeless and $2.75@$3 for bituminous.

Transportation affairs were put to their first real test during the past week and were found wanting. The N. & W. and the L. & N. placed embargoes against everything but coal and laid the blame upon the inability of the connecting lines to clear the congestion at this gateway. The C. & O. was in a bad fix though it was able to keep most of its loads moving. Prices which had been wavering stiffened under this condition.

CINCINNATI

The smokeless market holds to the even tenor of its way. Fewer cars of Dry Fork and New River prepared coal find their way into the hands of the middleman so that with this tonnage almost negligible it is useless to quote the prices, $7.50@$8, which are being asked. Circulars from the N. & W. have requested Pocahontas operators to tag as many of their cars east as possible. The shortest supply of smokeless that this territory has known for years is now a matter of record.

Increased buying of high-volatile coals with the cars in a jam south of the river brought an advance of 25c.@ 50c., with the holders of coal on wheels asking even more. The slowing down in production due to the holidays also has had its effect in helping to maintain the gain that has been made.

Retail business has not changed materially. Colder weather has brought in a raft of orders which can only be filled piecemeal. Smokeless lump sells at $11, run of mine $9.75: bituminous lump is $10.50, slack, $7.50.

HIGH-VOLATILE FIELDS

KANAWHA

There is some promise for relief from the car shortage since an order has gone forth to Western roads to furnish the C. & O. an excess number of cars for a period of 20 days in the hope of overcoming the deficiency in the supply. What little spot coal it has been possible to produce has been consigned to Western points, although there has been a growing demand in Eastern markets.

LOGAN AND THACKER

Logan production is not averaging over 33 per cent of capacity. Larger shipments are out of the question in view of existing transportation handicaps. There would be even more idleness if it were not for the fact that so many companies are storing their coal. Producers find it difficult to keep up a regular supply for their customers, especially in view of the slow movement over the Western divisions of the C. & O.

Thacker mines are not shipping more than 40 per cent of their possible output owing to the failure of the N. &. W. to furnish anything like adequate transportation facilities. Aside from the railroad fuel required by the N. & W., the bulk of the output is flowing on contract, production being insufficient to provide much free coal for the open market.

NORTHEASTERN KENTUCKY

With a car supply not over 26 per cent, the field is not producing as much as 100,000 tons a week. Even when coal is loaded it is held up at various points. There is a fairly good demand for steam grades and with railroads securing a good tonnage but few companies have any free coal to spare.

LOW-VOLATILE FIELDS

NEW RIVER AND THE GULF

The greatly restricted output in New River territory is to be attributed solely to a miserable car supply afforded by the C. & O. It has been going steadily from bad to worse despite all the management of the road could do. It has been almost out of the question to ship any coal to Western points. Eastern shipments have been stimulated.

Though Gulf production is on a little larger scale, it is nothing to boast of, fluctuating between 100,000 and 110,000 tons a week. It is now possible to secure $5 or better for spot mine run.

POCAHONTAS AND TUG RIVER

Pocahontas production has increased because of improved transportation facilities. The car supply is still irregular, however, preventing mines as a whole from loading more than 50 per cent of potential capacity. The great trouble appears to be with motive power on the N. & W. This road, having better facilities for moving coal to Eastern points, is making every effort to increase that rather than Western traffic. There is now a much better demand for Pocahontas in all grades in Eastern markets.

Tug River mines are also limited in production by the poor car supply. Contract orders alone would absorb more than the present output but it is not even possible to take care of that character of business.

Coke

CONNELLSVILLE

The coke market has been lifted entirely out of its regular channel by the sudden demand that has arisen for coke for domestic fuel in the East. The furnace coke market had gotten down to a point where it was easy to buy very good grades for blast furnace use at $6.50, but day by day there were heavy buying orders from the east, and all floating supplies were absorbed, until $9 was paid on a large lot.

The general market is now quotable at $8.50@$9, and this seems to apply equally to heating, blast furnace and foundry coke. The blast furnaces have been indisposed to pay prices asked, while foundries when quoted the advanced prices have postponed purchases.

Some operators seem indisposed to allow a transient demand to interfere with the regular movement to metallurgical consumers, but these are in the minority. Meanwhile, furnaces that buy at flat prices are uncovered for first quarter and are in no position, on account of prices at which they have sold pig iron, including their sales of foundry iron at $25, valley, for first quarter, to pay current prices for coke. There are practically no negotiations for first quarter contracts and matters will probably drift until the situation becomes clearer. There is a possibility of some furnaces banking.

Estimated production of coke during the week ended Dec. 16, was 208 610 tons, an increase of 5,800 tons as compared with an increase of 9,040 tons during the week preceding.

UNIONTOWN

Orders have come into the coke region from Philadelphia, New York and New England for all available tonnage for domestic use and price does not seem to be a factor. As a result the price has advanced sharply.

The sudden shift of the coke market has practically suspended contract negotiations for 1923 delivery but a few inquiries are out for January business. Ten days ago furnaces would have been able to close for business up to March 31 but now operators are reluctant to commit themselves and it is almost a foregone conclusion that no contracts will be made to extend more than a month at a time.

The coal market also has stiffened, due to cold weather, but also to a great extent to the ever-prevailing car shortage. There were fewer cars placed this week than at any time since the strike ended. Quotations now are $2.75 @$3 for steam and $3@$3.50 for byproduct.

BUFFALO

The market is getting to be much influenced by the need of something as a substitute for anthracite. Prices are strong. The byproduct ovens are not able to provide any for domestic use. For the present the supply is very short. The local furnaces are increasing their activity. The local illuminating gas company now makes no gas and so has no coke to sell. It buys its gas of the byproduct ovens and mixes it with natural gas.

News Items From Field and Trade

CONNECTICUT

The Devon Coal & Ice Co., Bridgeport, is a recent incorporation under the laws of Connecticut, to engage in the coal and ice business with a capital stock of $50,000. The men signing the incorporation papers are William B. Boardman, Jonathan Grout and Lawrence J. Eckstrom, all of Bridgeport.

ILLINOIS

E. F. Kuhlman, vice-president of the Keystone Coal & Mining Co., Chicago, recently married Miss Margaret Bales, of La Grange, Ill. The couple left immediately for a week's honeymoon in the East, expecting to visit New York City, Washington and other cities en route.

J. H. Vickers, of the Bitumacite Coal Co., of Chicago, announces that Mt. Vernon has been selected as the location for its plant for the manufacture of bitumacite, a substitute for coal. The first plant will consist of a unit with a capacity of 500 tons of bitumacite per day. The company also plans to make Mt. Vernon the headquarters for the manufacture of its processes and other of its machinery and equipment.

The **Sangamon County Mining Co.**, Springfield, owners of the Latham mine, Latham, and the Citizens mine, Lincoln, as well as various holdings in Springfield and vicinity, have changed the name of their company from the Sangamon Mining Co. to the **Brewerton Coal Co.**, and the capital stock has been increased from $200,000 to $500,000. One reason for changing the name of the company was the fact that there is already existing a Sangamon Coal Co. and considerable confusion through the state resulted.

The **Central Illinois Public Service Co.**, announces that it will soon furnish power for the 12 mines of the Old Ben Coal Corporation in Franklin and Williamson counties. The lines of the power company will be connected with those of the mining concern at West Frankfort and will furnish power for the output annually of approximately 6,000,000 tons of coal and the power bill of the mining company will aggregate nearly half a million dollars each year. The contract signed between the two companies calls for the service for a period of ten years. The Central Illinois company states that this will make a total of about 73 mines being furnished with power from its plant at Harrisburg and other plants located in southern Illinois. The company is at present erecting a large new plant near Grand Tower on the Mississippi River.

The Glen Ridge Coal Mining Co., Chicago has been incorporated, with a capital of $100,000; incorporators: Charles W. Bidwell, Calem S. Fudge, Elmer W. Hebestreet, A. H. Meas and Arthur W. Kettles.

The Quaker Coal Co., Chicago, has been chartered to mine and deal in coal, etc.; capital, 100 shares, no par value. The incorporators are Edward D. Pomeroy, Edward P. Kearns and Henry T. Martin.

The Wolverine Coal & Mining Co. has increased its capital stock from $20,000 to $50,000.

The Trojan Coal Co. has increased its capital stock from $20,000 to $30,000.

E. C. Searles, of Chicago, of the Crear-Clinch Coal Co., has returned to his home in that city after visiting coal properties in Williamson County.

Clifford Mine No. 8, Christopher, lost its washer and practically all of the wood work in a recent fire. The loss is estimated at $90,000. The mine is owned by the **Consolidated Coal Co.**, St. Louis, Mo. The mine will be able to resume operations as soon as the scales are replaced and general repairs made.

The West Frankfort office of the **Old Ben Coal Corporation** is to soon have a telegraph outfit installed for the private use of the company with its main office in Chicago and with its many mines in Franklin County. The plan is expected to save a good deal of money.

INDIANA

The Midwest Fuel Co., Indianapolis, has been chartered to deal in coal; capital, $10,000; directors, James W. Costin, Mildred C. Costin and Burrell Wright.

Three men were seriously injured recently in the **Wabash mine** at West Terre Haute, when they were struck by one of the haulage motors. It is said the three men were coming out of the mine with mules and that either there was a misunderstanding of signals or the motor broke away and they were struck before having time to clear the tracks. The mine is owned by the Coal Bluff Mining Co.

Fire recently destroyed the miners' wash house and the blacksmith shop of the **Green Mound Coal Co.** mine seven miles south of Washington, on the Big Four R.R. Work clothes of 135 miners and valuable machinery were burned. There was little insurance. The mine is owned by T. C. Bugg, of Evansville.

The Consumers Co-operating Coal Co. has been organized at Vernon with a capital stock of $50,000, to operate mines and deal in retail selling of coal, cement, lumber and other building materials. The organizers of the company are **W. T. Semon, Otto H. Olfe. Jr.**, and **B. H. Smith.**

A shot firer was killed in a dust explosion recently which wrecked the **Mohawk mine**, fourteen miles northwest of Linton. The damage to the mine is estimated at $50,000. The shaft will be out of commission for at least two weeks.

A new tipple is being erected at the **Cates coal mine.** The mine is in Fountain County, a few miles east of Danville, Ill. It is a wagon mine and coal is trucked to Lafayette, Crawfordsville, Attica and Veedersburg. The coal is known as the Bastard Block. This mine is proving to be a successful one and is handling a large volume of coal each week. It is owned by W. M. Vaun, of Newport, and William Copas, of Stringtown.

IOWA

The Burlington R.R. will build a switch for the **Pearson Coal Co.**, at Clarinda. The switch will be 700 or 800 ft. long. The new mine of the Pearson Coal Co. is southwest of Clarinda, on the G. W. Standage farm. The switch will extend from the Tarkio branch right of way.

KANSAS

The Carr coal mine, near Leavenworth, was closed down Dec. 8, with the consent of the Kansas Court of Industrial Relations. In its petition to the court the company declared it could not operate at a profit until the cost of mining coal decreased or the price of coal increased. In 1921 the mine produced 37,952 tons, representing the output of 149 men working 177 days.

KENTUCKY

The Big Seam Coal Co., Creech, has been chartered with a capital of $45,000, stockholders being C. J. Lewis, J. D. Yarbrough and McKinley York.

The Falls Branch Coal Co. has filed articles of incorporation with the County Clerk at Louisville for owning and leasing coal and timber lands and mines. Capital stock was placed at $70,000. The company will be managed by a board of three directors, consisting of P. Wooldridge of Pewee Valley, Ky.; J. P. Wooldridge, of Wooldridge, Tenn., and C. F. Wooldridge, of Louisville.

Organization of the **Baum Coal Co.**, incorporated in West Virginia for the development of eastern Kentucky coal lands, has been announced by W. G. Denning, C. P. Munch and R. J. Edwards. The company is incorporated for $300,000.

The Spring Lick Coal Co., of Spring Lick, has been incorporated with a capital of $25,000, the incorporators being George W. Heheman, Mrs. Anna Mabel Heheman, Carlos H. Givan and Mrs. Mary A. Givan.

Five of thirteen men on trial at Dixon for the death of **L. B. Wiley**, mine operator, shot to death by a mob on the night of Sept. 18. 1921, were released on Dec. 8, as the commonwealth was unable to prove any connection between the men and the crime. Eight others are to be tried. Wiley was shot to death at Sebree, by an armed mob, when close to his home. There had been some previous labor trouble at the plant.

The Green River Fuel Co., of Mogg, has been chartered with a capital of $20,000. The stockholders are Carl A. Reis, L. D. Shearer and John R. Barrett.

The Easter Coal Co., of Middlesboro, capital $20,000, has been chartered by P. L. Smythe, St. Paul, Va.; J. P. Brashear and John Howard, of Middlesboro.

The Virginia Supply Co., Hazard, capital $100,000, has been chartered by M. E. Brown, P. B. Noel and Wiliam Senter.

The Atlas Coal Co., Louisville, reported a barge of coal in on Dec. 14, the first river shipment received by the company in several years, it having depended on rail shipments since abandoning its river unloading equipment some years ago.

Whitesburg, has reported the organization of the **Baum Coal Co.**, incorporated in West Virginia, for development in eastern Kentucky coal lands. W. G. Denning, C. P. Munch and R. J. Edwards are charter members in the $300,000 company.

The State Tax Commission announced the appointment of **J. L. Smith**, Danville, to head a group for the study of Kentucky coal and mineral lands with a view to a uniform assessment. Three other men will be named later Chairman Rainey T. Wells said. The 1922 General Assembly appropriated $20,000 annually for two years to be used in making a survey of the coal and mineral lands of the state so that the Tax Commission could arrive at an equitable assessment.

The West Kentucky Coal Bureau is taking what steps it can to induce the State Legislature **not to pass a proposed tonnage coal tax.** The bureau members believe such a tax would cripple eastern Kentucky fields and practically put the western state field out of business. The bureau recognizes the fact that in normal times it is hard indeed for western Kentucky to find a market for its coal at a price that returns any profit at all.

MASSACHUSETTS

The Massachusetts Anthracite Co., of Boston is a recent incorporation under the laws of that state, to deal in coal, etc. The capital stock is $200,000, and the officers are: President, William C. Bragg, and treasurer, Leonard J. Mossness.

MICHIGAN

Coal mining operations have been resumed in the **People's Coal Mining Co.'s** properties north of Albion, and the production, which will eventually be near 200 tons daily, is now past the 50-ton mark. The mine was electrically equipped during the summer and autumn.

MINNESOTA

H. E. Hamet, sales agent of the Northwestern Fuel Co., was in Duluth recently. After viewing the market there he went to the Mesaba Iron Range cities.

W. A. Prinsen, for a year or so secretary of the Northwestern Coal Dock Operators Association, has resumed his former connection with the Inland Coal & Dock Co., of Minneapolis, assisting Mr. Kendrick, vice-president of the company. Mr. Prinsen was with the dock association as traffic manager for several years prior to becoming secretary and came to the association from the Great Northern Ry. His successor with the dock organization has not yet been selected.

MISSOURI

The Mitchell-Lovell Coal Co. has just been formed at Huntsville, and probably will open a mine near there soon. The new company has been capitalized at $9,000 and the incorporators are M. E. and W. E. Mitchell and E. B. and A. D. Lovell.

The Willis Coal & Mining Co., St. Louis, **has filed suit** in Federal Court **against the Mobile & Ohio R.R.** to collect $40,620.18 alleged to be due for coal furnished the railroad for a period of two years prior to July 1. The plaintiff's bill in equity set forth that the railroad company had contracted to buy 480,000 tons of coal during the two years. The coal was delivered, it was said, the total bill for which was $2,285,067.56. Of this sum, the petition averred, only $2,244,447.38 was paid, leaving an unpaid balance which the railroad company had refused to pay.

The Rutledge & Taylor Coal Co., of Illinois, with a capital stock of $50,000, has been incorporated to do business in Missouri, with headquarters in St. Louis. The shareholders are W. E. Rutledge, F. W. J. Sextro and H. O. Edmonds.

The Barr coal mine, east of Brookfield, operated by I. J. Turpin, is flooded with water and it is doubtful if the mine can be worked any more this season. The mine furnished employment to quite a number of men and was producing well. It is believed the water came from an old shaft in the neighborhood.

Cold weather has brought increased activities in the coal field of Rich Hill district and mines are resuming operations. **The Jones Coal Co.** and the **Rees Coal Co.**, each employing about 50 miners, have resumed operations. It is expected that other coal operators will follow suit and that more mines will be in operation by the end of the present month.

NEW YORK

H. C. Matlack has been elected president of the **Matlack Coal & Iron Co., Inc.**, New York, A. F. Kempe has been elected vice-president, and G. Walter Bates, secretary and treasurer.

Thomas T. Brewster, vice-president and general manager of the Mt. Olive & Staunton Coal Co., is a nominee as director and as one of the two vice-presidents of the **American Institute of Mining and Metallurgical Engineers.** As the official ticket of the committee on nominations usually is accepted by the members, Mr. Brewster's election may be regarded as assured.

OHIO

The Cresmer Coal Co., Zanesville, has been incorporated; capital, $100,000; stockholders, S. H. Carrick, C. W. Howell, E. F. O'Neal, H. C. Pugh and Hazel A. Shrake.

The Oberlin Coal Co. has been chartered with a capital of $20,000 to deal in coal at wholesale and retail at Canton. Incorporators are C. E. Oberlin, William B. Quinn, Cora E. Oberlin, Grace Oberlin and Claude W. Oberlin.

The Lackawanna Coal Co. has been incorporated with a capital of $10,000 to deal in coal at wholesale at Cleveland. Incorporators are W. F. Maurer, B. Bolton, Norton McGriffin, John F. Wilson and E. R. Dolin.

A deal has been concluded whereby 90 per cent of the stock of the **Crystal Ice & Fuel Co.**, of Columbus, has been acquired by the **City Ice & Fuel Co.**, of Cleveland. The new owners will make no immediate change in the policy of the company as to the department selling coal. William Bott will continue as secretary of the company.

In a decision handed down recently, the Ohio Supreme Court held that the **distributing company** in the cases brought by 22 mining concerns in the Hocking Valley against three power companies for a reduction in current rates **was a public utility** and thus **comes under the jurisdiction of the Ohio Utilities Commission.** Previously the Utilities Commission decided that the distributing company was a non-utility and thus the commission had no jurisdiction. The mandate from the Supreme Court has not yet arrived and until that is received no additional action will be taken by the commission. A reopening of the entire case will be ordered and the question of the reasonableness of the power rates will be taken up. The complaining companies operate 53 mines with a daily capacity of 13,000 tons.

The name of the **Tribbey Coal Co.**, Cincinnati, has been changed to the **Midland Coal Sales Co.** Charles Tribbey, who formed the company about six years ago, was stricken with paralysis some three years ago and sold out his interest last May. **John Glasier**, who has been general manager for some two years, now has complete charge. The personnel of the new company will be announced later.

D. C. Kennedy, secretary and commissioner, and **Charles Cabell**, president, of the **Kanawha Operators' Association**, were in Cincinnati recently going over the situation as it obtains with some of the operators who signed up with the union.

Operating men recently in Cincinnati were J. S. McKeever, general superintendent of the Kanawha & Hocking Coal Co., of Longacre, W. Va.; W. L. Mitchell, general manager of the Plymouth Coal Co., Plymouth, W. Va.; Frank Harris, of the Cannelton Coal Co., Cannelton, W. Va.; Quin Morton, of the Fort Dearborn Coal Co., Charleston, W. Va.; C. H. Thompson, of the Old Virginia Coal Co., Darbyville, Va.; W. J. Nixson, of the Kelly's Ferry Coal Co., Chattanooga, Tenn.; L. L. Shivers, general manager of the Seminole Gas Coal Co., Clarksburg, W. Va., and R. H. Barker, of the Barker Fuel Co., Louisville and Pineville, Ky.

The Landson Coal Co., Cadiz, has been chartered with a capital of $500,000 to mine and sell coal. Among the incorporators are Charles H. Smylie and John M. Francis.

The Clear Creek Coal Co., Cincinnati, has been chartered with a capital of $100,000 to mine and sell coal. Incorporators are M. A. Hannan, Christ MacTaggart, R. M. Brestel, H. K. Howard and R. N. Osborn, Jr.

PENNSYLVANIA

A strike of 1,400 men at the Lehigh Coal & Navigation Co.'s No. 8 colliery, near Tamaqua, **was called off Dec. 20** when the company agreed to furnish an additional loader with the understanding that when the maximum output is reached no request for additional men will be made. A number of the miners walked out Dec. 18, claiming they had been overworked. The strike forced the colliery to close.

H. M. Kanarr, mining engineer, has opened a branch office in the Marlin Building, Brookville, with James S. Scott, C. E., in charge as manager.

A charter has been granted to the **South Union Coal Co.**, Greensburg, with an authorized capital stock of $1,000,000. The incorporators are John M. Jamison, Jay C. Jamison and Robert W. Smith, all of Greensburg.

E. C. Brandt, works manager of the Westinghouse-Krantz Works, has been appointed works manager of the new plant now being erected by the Westinghouse Electric & Manufacturing Co. in Homewood, Pittsburgh.

Paul Smolink, fireboss in Franklin Mine 2 of the Cambria Steel Co., Johnstown, met instant death Dec. 20 when a motor which he was operating in the mine crashed into a train of empty coal cars. He was thrown from the motor and the empties buckled up over his body. Smolink was a member of the steel company's mine-rescue squad that rescued the first group of survivors from the Reilly Colliery at Spangler in the disaster which claimed seventy-seven lives on Nov. 6. He, with ten others of the crew, was awarded a gold watch by the local company in recognition of his service. Smolink's watch, which had been in the engraver's hands arrived at his home a few hours after he met death in the mine. Smolink who was born in Germany, served in the U. S. Army during the World War.

After being worked for 25 years the **Baggaley mine of the H. C. Frick Coke Co. has been abandoned.** Edward Casey hauled the first load of coal from the mine and he was accorded the privilege of bringing up the last trip. The Baggaley employed 400 miners who will be scattered at other nearby Frick operations.

The Pocono Coal Co., Lackawanna County, has notified the State Department at Harrisburg that it has changed its corporate name to the **Clifford Coal Co.**

Thirty-two agreements for **payment of compensation** growing out of the **mine fatalities at Spangler** have been approved by the State Workmen's Compensation Board. The agreements aggregate $148,680, or an average of more than $4,500 in each case. Twenty-nine widows, two fathers, three mothers and eighty-one children under sixteen years of age and who lost those upon whom they were dependent are benefited by the agreements.

The decision of the U. S. Supreme Court which held that the Kohler mine-cave act of 1921 is unconstitutional, probably will result in a renewed effort on the part of legislators from the Lackawanna County district **to have the state constitution amended.** Delegations from Scranton and surrounding territory explained the need for an amendment before the State Constitutional Revision Commission, which drafted a tentative copy of a new constitution for reference to a Constitutional Convention. The people last year voted against a convention and changes can now be made only by having two succeeding Legislatures pass upon joint resolutions prior to submission of a question to the voters.

TENNESSEE

George J. Allen, formerly with the Louisville (Ky.) office of the Dixie Fuel Co., as buyer and salesman, has been transferred to the Nashville office as southern sales manager.

UTAH

There seems to be little likelihood that any serious effort will be made to pass a law putting the coal industry in this state under the Public Utilities Commission or any other body or official. Thoughtful persons realize the difficulty in any case of interfering with the coal men unless the interference is on a national scale. If coal prices here are not satisfactory to the operator he can send his product elsewhere. Especially would this be the case in the event of a general strike in the coal fields of the nation or the West.

Development of the coal fields of Utah, with an outlet at Los Angeles harbor, has been given impetus through action by the Board of Harbor Commissioners of Los Angeles in approving plans for the establishment of a half million dollar coal bunker on Pier 1 at the port by the Marine Transportation & Fuel Co. Officials of the company state that they will receive coal both by land and sea to supply coal-burning vessels touching at the port. It is reported that the Utah fields would be tapped by the Santa Fé R.R., which would transport the coal to the harbor via its proposed franchise right-of-way extending to the port from its existing tracks between Ingelwood and El Segunde. Los Angeles interests are declared to be back of the proposed development of the Utah coal deposits and it is said that the project will involve the expenditure of approximately $250,000.

VIRGINIA

The first shipments of navy coal contracted for with the **Pocahontas Fuel Co.** for delivery in Norfolk in January, February and March, will arrive at the Naval Operating Base soon after Jan. 1. The navy has bought 100,000 tons at $7.80 gross at the piers. Approximately 200,000 is held in reserve at the Norfolk naval base.

The offices of **Jewett, Bigelow & Brooks**, maintained at Norfolk for a number of years, will be closed Jan. 1. **W. H. Brown**, Norfolk manager for the company, has organized the **W. H. Brown Coal Co.**, and will begin business under that name on the same date and in the same offices. He has not completed arrangements for business connections as yet. Information here is to the effect that the Jewett, Bigelow & Brooks company has obtained a selling agency and that that firm will be dissolved.

WASHINGTON

Major William J. A. Muirhead, who resigned as traffic manager of the Port of Seattle, has accepted the position of vice-president and general manager of the **American-Canadian Coal & Coke Co., Inc.**, which was organized last May and has extensive interests in Alberta. The company will maintain offices in Seattle and Wenatchee.

WEST VIRGINIA

Governors of eleven states, accompanied by their wives, donned jumpers Dec. 15 at Glen White, near Beckley, and descended 250 ft. into the earth to **inspect a coal mine.** All wore the regulation miners' caps with lamps attached. The Governors came from White Sulphur Springs, where they had been attending the fourteenth annual conference of the Governors.

Two hundred and twenty workers at the Jamison No. 8 plant of the Jamison Coal & Coke Co., at Farmington, have gone on strike in violation of the union contract despite orders of union officials and without having any grievance against the company by whom they are all employed. The strike was precipitated by the refusal of the Mayor of Farmington, a member of the union, to pay a fine of $100 assessed against him by the local because he worked as a watchman during the strike, as was permitted under the joint agreement.

The Pinnacle Coal & Coke Co., a large Pennsylvania concern, operating on Campbell's Creek, in the Kanawha district, mining coal from the Campbell's Creek seam, is letting contracts for the sinking of a ventilation shaft on the property. Work will be started at once. The Pinnacle mine will be one of the largest operations in this section, as it is planned to produce 1,500 tons of coal daily in the next three months. John T. Williams, is general manager; Robert T. Wilson, assistant general manager, and L. Everett White, superintendent.

The $2,000,000 **coal mine of the Brotherhood of Locomotive Engineers**, on Big Coal River at Seth, Boone County, is to begin operations Jan. 15. The company is known as the Coal River Collieries Co. and its board of directors contains the names of the following brotherhood officials: Warren S. Stone, chairman of the brotherhood; W. B. Preater, vice president; T. C. Songer, general chairman of engineers on the C. & O.; Charles E. Glass, of Hinton, and J. T. Keister, of Peru, Ind.

By an agreement between attorneys for the state and defendants, the trial of **C. Frank Keeney**, president of District 17, United Mine Workers of America, will take place at **Berkeley Springs**, Morgan County, **Feb. 19**, it has been announced by Attorney A. M. Belcher, representing the prosecution. This date for the trial, it is understood will be formally fixed by Judge John Mitchell Woods, of the Morgan Circuit Court, when the regular term opens at Berkeley Springs, Jan. 2.

The 44 new coal companies organized in West Virginia during the months of October and November had an aggregate capitalization of $4,225,000. There continues to be expansion of the industry notwithstanding advice from Washington to refrain from investing capital in the development of coal lands and notwithstanding the fact that the price of coal has been on the decline. In the months mentioned the following companies were organized: **B. R. & P. Coal Co.**, Fairmont, $50,000; **Winifrede-Hatfield Coal Co.**, Williamson, $50,000; **Radio Fuel Co.**, Morgantown, $50,000; **Miami Co-operative Mining Co.**, Charleston, $125,000; **Best Coal Co.**, Charleston, $50,000; **Superior Block Coal Co.**, Morgantown, $50,000; **Baldwin Pocahontas Coal Co.**, Eria, $400,000; **Morrison Coal Co.**, Charleston, $500,000; **Acme-Eagle Coal Co.**, Huntington, $25,000; **Cora Mining Co.**, Huntington, $200,000; **Indian Hill Coal Co.**, Morgantown, $50,000; **Colgate Coal Co.**, Charleston, $25,000; **Eldee Coal Co.**, Huntington, $100,000; **Bell-Creek By-Product Coal Co.**, $50,000; **Baum Coal Co.**, Lexington, $300,000; **McCartney Coal Co.**, Wheeling, with operations in Ohio, $5,000; **McMechen Coal Co.**, McMechen, with operations in Ohio, $100,000; **Slater Creek Coal Co.**, Charleston, $100,000; **Balwood Coal Co.**, Glen Jean, $10,000; **Beda Smokeless Coal Co.**, Huntington, $25,000; **Elwill Coal Co.**, Charleston, $2,500; **Petrelli Coal Co.**, Follansbee, $100,000; **Gordon Consolidated Coal Corporation**, Clarksburg, $100,000; **Lubeno Coal Co.**, Wheeling, $50,000; **Emmart Coal Co.**, Charleston, $10,000; **Max Coal & Coke Co.**, Charleston, $25,000; **Fairmont-Pittsburgh Coal & Coke Co.**, $100,000; **Two States Coal Co.**, Morgantown, $50,000; **Talisman Coal Co.**, Morgantown, $10,000; **Alpine Coal Co.**, Charleston, $250,000; **Waugh-Longley Coal Co.**, Williamson, $10,000; **Fenimore Collieries Co.**, Van, $125,000; **Clay County Coal Co.**, Clay, $100,000; **J. D. Boone Coal Co.**, Fayetteville, $300,000; **Brown Coal Co.**, Flemington, $125,000; **Tygart Valley Fuel Co.**, Clarksburg, $100,000; **Wise Pocahontas Coal Co.**, Welch, $50,000; **Jones-Island Creek Mining Co.**, Charleston, $25,000; **W. F. Toney Coal Co.**, Williamson, $25,000; **Midland Smokeless Coal Co.**, Ronceverte, $50,000; **Ralfay New River Collieries Corporation**, Beckley, $287,500; **Ohio County Fuel Co.**, Pittsburgh, Pa., $5,000; **W. A. Coal Company**, Welch, with operations in Kentucky, $10,000; **Helen Coal Mining Co.**, of Cumberland, Md., $50,000.

Robert E. Rightmire, engineer of tests of the Consolidation Coal Co., has recovered from a brief illness and is able to be at his desk again.

Joseph G. Kerns, former treasurer of the Wyatt local of the United Mine Workers of America, was sentenced to serve five years in the state penitentiary at Moundsville by Judge John C. Southern in criminal court today when he entered a plea of guilty to misappropriating funds of the union. Kerns, according to information furnished the authorities, stole about $2,400 from the union and then fled to Oklahoma, where he was arrested on a capias and brought back to Harrison County for trial.

Spontaneous combustion has caused two serious blazes in storage coal piles in the Logan district, threatening the partial destruction of about 40,000 tons of coal. Fire was discovered in one of the storage piles of about 35,000 tons, stored by the Amherstdale Coal Co., not far from Logan, on Dec. 4. A day later a storage pile of 5,000 tons, belonging to the Gay Coal & Coke Co., about one mile from Logan, caught fire. Three shifts of fighters were used in stopping the fire in the storage pile of the Amherstdale company, a large quantity of the coal being hauled away so as to prevent its entire destruction. Approximately 10,000 tons were lost because of the fire.

Seniors of the mining engineer school of the West Virginia university are being trained in mine-rescue and first-aid work by **Robert Lilly**, a member of the inspection force of the State Department of Mines. It is stated by Inspector Lilly that there are 218 men enrolled in Mount Hope district in the night mining classes. More than 800 miners in West Virgnila are enrolled in night mining classes.

The **Best Coal Co.** plans to erect a tipple, miners' houses, open a store all in preparation for the mining of coal at a point near the city of Charleston.

Organization of the **Uneeda Coal Co.**, with headquarters at Charleston, will make it possible to develop coal land in the Kanawha District. This company has just been chartered with a capital stock of $50,000. Leading figures in the new concern are: J. T. Lightner, Joseph Norton, Susan Smith and E. B. Dyer, of Charleston; Dell Kendrick, of Madison.

It is reported that the **Nuttallburg mine**, owned by the Ford interests, **has resumed operations** after a shutdown of a month or more. For a time the owners contemplated abandoning the mine, but it is now understood that an opening will be driven at some point on Keeney's Creek and a tipple built near the new opening. This will obviate the costly long haul to the old tipple at Nuttallburg.

Increases in the capital stock of the following coal companies have been authorized by the Secretary of State of West Virginia: Shriver Coal Co., from $300,000 to $600,000; **Ben's Run Coal Co.**, from $50,000 to $75,000; **Opperman Coal Co.**, from $50,000 to $300,000; **Margarette Coal Co.**, from $500,000 to $750,000; **Co-operative Fuel Co.**, from $25,000 to $100,000; **Wyatt Coal Sales Co.**, from $100,000 to $200,000; **Long Branch Coal Co.**, from $150,000 to $500,000. The **Wood Peck Fuel Co.** has reduced its capital stock from $200,000 to $75,000.

The largest single order for electrical mining equipment ever placed by a West Virginia operating company, it is believed, is that recently made by the **Coal River Collieries Co.**, of which Harry Leaberry is president. Included in this order were eighteen mine locomotives and five substations in every way complete, the cost of the new equipment ordered being in the neighborhood of $150,000. This equipment is to be installed at the new plant of the company in the Coal River field. Part of it will be shipped by Jan. 1. The Coal River Collieries Co. is controlled in large part of the Brotherhood of Locomotive Engineers.

The Eleanor mine of the **Hite Barnes Coal Co.**, on Indian Creek in Monongalia County, has been completely electrified with a view to making electric haulage possible. Among other equipment installed was an eight-ton motor.

The Vanball Coal Co. has changed its general headquarters from Huntington to Charleston.

Prentice Burlingham, of the **Burlingham Coal Co.**, of Cincinnati, with large operations in the Hazard and Harland fields, was operated upon Dec. 4 for gallstones. Mr. Burlingham is one of the energetic members of the Cincinnati trade whose activities will be missed.

CANADA

NOVEMBER OUTPUT OF COAL IN BRITISH COLUMBIA

VANCOUVER ISLAND DISTRICT

Mine	Tons.
Western Fuel Corporation of Canada, Nanaimo	54,751
Canadian Collieries, Comox	23,498
Canadian Collieries, Extension	18,858
Canadian Collieries, South Wellington	8,489
Granby Consolidated M.S.&P. Co., Cassidy	23,465
Nanoose Wellington Collieries, Wellington	10,642
Old Wellington, Nanaimo	1,142
Total	140,845

NICOLA-PRINCETON DISTRICT

Middlesboro Collieries, Middlesboro.	6,667
Fleming Coal Co., Merritt	3,432
Coalmont Collieries, Coalmont	13,331
Princeton Coal & Land Co., Princeton	2,025
Total	25,455

CROW'S NEST PASS DISTRICT

Crow's Nest Pass Coal Co., Coal Creek	45,240
Crow's Nest Pass Coal Co., Michel.	33,454
Corbin Coal & Coke Co., Corbin	5,038
Total	83,732
Total November	250,032

A strike called in District No. 18, U. M. W. A., thus far seems to have affected only certain coal fields in the Province of Alberta. The Crow's Nest Pass and other parts of eastern British Columbia have not yet been drawn into the trouble. Headquarters of the U. M. W. A., Calgary, Alta., explained at the outset that the union was demanding recognition and an agreement to negotiate a wage scale in the local field. Subsequently intimation was received that the strike was not authorized by the U. M. W. A., that the men had not really gone on strike, but merely had ceased work in order to hold a meeting to discuss certain grievances, and that the entire situation was to be investigated by the union. Conditions and the issues seem rather confused. There is no doubt, however, that most of the mines are working without interruption and production is not likely to be seriously affected by these disturbances.

The United Mine Workers have been very active **in picketing the mines in the Edmonton district of Alberta**, and there has been a good deal of rioting. William Ryan, one of the vice-presidents of the union, was arrested for trespassing on the Black Diamond mine property, and five members of the union were arrested for assaulting miners working at the Marcus mine. There was a free fight between miners and strikers at the Fraser-McKay mine, but as the police were not in the neighborhood no arrests were made. An emergency squad of Provincial policemen is on its way to the mine. Only one small mine in the district has been closed, and although between three and four hundred men are out, the operators aver that the output of the field has not been greatly decreased and that they are able to fill all orders for coal.

There is a general feeling of dissatisfaction throughout British Columbia at the large amount of **Oriental labor** that is being **employed in the Vancouver Island coal fields.** Oriental labor is used by only some of the operators. The Vancouver City Council has placed itself on record in the matter, and has decided to purchase coal only from companies that are not employing Oriental labor.

Members of the United Mine Workers in the Springhill bituminous district **refuse to pay dues**, and have threatened to refrain from paying dues until the wage-scale agreement enacted between the officers of District 26, United Mine Workers' Union, and the Dominion Coal Co. (British Empire Steel Corporation) is revoked. The Springhill miners refuse to recognize Dan Livingstone as district president and demand that he resign from office, and also that J. B. McLachlan resign from his office as secretary. The miners have not ceased work. Theirs is a sort of strikeless protest against the wage agreement. They have been conducting rallies at which addresses have been made denouncing the agreement and the officers of the district of the union who made the agreement. President Livingstone has refused to resign and has stated he will stand by the agreement.

Phalen local, of Glace Bay, the biggest local in District 26, also **has protested against the agreement.** This is the local that started the agitation that resulted in the overwhelming defeat of Robert Baxter for re-election as district president last spring, and the election of Dan Livingstone of Westville. President John L. Lewis has been asked to detail a member of the national executive to visit the Maritime Provinces and endeavor to smooth over the differences. The rebellion of the Springhill miners affects about two thousand men. The Glace Bay protest has not reached such a stage as the Springhill objection. The Springhill men demand that the Montreal agreement made between the miners of the district and officials of the Dominion Coal Co. in 1920 be substituted for the present agreement, which was entered into in a conference at Glace Bay last summer.

With the completion of the **Canadian Pacific Ry.** line from Acme to Drumheller, Alta., five new coal mines along the line have been put into operation. The coal mined is stated to be of excellent quality for domestic purposes.

Imports and exports of coal during the first eleven months of the year are given in a summary just issued by the Dominion Bureau of Statistics. The totals for both are far below the average for the corresponding period of the three preceding years, as shown in the following figures:

CANADIAN EXPORTS AND IMPORTS

	1st eleven mos. 1922	3 yr. average 1919-1921
Anthracite imports	2,012,169	4,165,290
Bituminous imports	7,963,445	10,639,745
Coal exports	1,652,340	2,027,359

WASHINGTON, D. C.

Navy surplus coaling buckets will be sold by sealed proposals, bids to be received by officer in charge, Navy Central Sales Office, Navy Yard, Washington, D. C., and to be publicly opened at 11 A.M., Jan. 10, 1923. Particulars may be had by addressing the U. S. Navy Central Sales Office, Washington.

Traffic News

It is reported that the **St. Louis & San Francisco R.R.** will extend its branch line with present terminus at Empire, Ala., to Arkandelphia, Blount County, Ala. The proposed line will penetrate some of the richest coal properties in the Birmingham district, which have not heretofore been developed because of lack of transportation facilities.

It is understood that the **Louisville & Nashville R.R.** has about decided to build a line into Walker County so as to reach the Empire mine of the Empire Coal Co, which already is served by a spur of the Frisco. Numerous other coal properties also will be reached by this projected extension, which will afford a lucrative coal traffic.

By an order entered Dec. 14 in **Investigation and Suspension Docket No. 1711** the Interstate Commerce Commission suspended from Dec. 15, 1922, until April 14, 1923, the operation of certain schedules contained in Supplement No. 22 to Agent E. B. Boyd's tariff I. C. C. No. A-1048. The suspended schedules propose increases and reductions in the rates on coke in carloads from Chicago (Ill.) and St. Louis (Mo.) territories to points in southwestern Missouri and southeastern Kansas.

Rates on coal from Lake Superior points to Iowa, Wisconsin, Minnesota and North and South Dakota have been attacked by the Northwestern Coal Dock Operators' Association in a complaint filed with the Interstate Commerce Commission. Rates on coal from **Lake Michigan docks to points in Wisconsin** also are the subject of complaint by the C. Reiss Coal Co.

The Chesapeake & Ohio Ry. is opening a general freight office in Ashland, Ky., with Mr. Middleton, who has been connected with Mr. Sydnor's office at Huntington, in charge. This new office will be of great assistance to all shippers in the Big Sandy district and Ashland.

The Coal and Coke Committee, Trunk Line territory, announces a hearing of File C-1522, a proposal for adjustment of rates on anthracite (buckwheat and smaller) from mines on Central Railroad of New Jersey and Lehigh Valley R.R. to points on Lehigh & New England R.R. The hearing will be held in Room 401, 143 Liberty Street, N. Y., 11 A.M., Thursday, Dec. 28.

A reduction in coal rates from Alabama mines on the Central of Georgia R.R. to Memphis, Tenn., is proposed by the mines, which ask the same rate as given to mines in Alabama on the Frisco to Memphis. Coal from the mines effected to Memphis now is $2.09 per net ton, while the rate in effect from Alabama mines to Memphis via the Frisco is $1.97 per net ton.

Obituary

Edward A. Uhrig, president of the Milwaukee Western Fuel Co., died in Milwaukee, Dec. 14, after a short illness. Mr. Uhrig became a national factor in the coal trade in 1901, when he completed the organization of all the large docks in Milwaukee under the name of the Milwaukee Western Fuel Co. While H. M. Benjamin was the first chairman of the board, the real credit for the combination was always given to Mr. Uhrig. This consolidation absorbed the business of the B. Uhrig Fuel Co., the H. M. Benjamin Coal Co., the R. P. Elmore Co., the F. R. Buell Coal Co., and George E. Eastman. At the time of the organization, E. A. Uhrig was elected president. From a comparatively small beginning, the company grew rapidly under the direction of Mr. Uhrig, and this year more than 5,000,000 tons of coal has been handled.

Thomas J. Richards, one of the foremost mining men of Pennsylvania in his time, died at his home in Punxsutawney, Pa., Dec. 4, in his 86th year. Born in Dowlais, South Wales, April 25th, 1837, he came to America in 1842. In 1874 he entered the employ of Fisher Brothers & Miller as superintendent of Excelsior Mine No. 1. When the Excelsior mine and holdings were sold to the Berwind-White company they retained him as general manager of the company. Mr. Richards then located at Punxsutawney in 1888, and immediately opened up the mines. He served as general superintendent of the Berwind-White mines in this field until retired in 1903 with a pension from the company.

Jordan Nelson, who is said to have discovered the Pocahontas coal field, died at his home in Bluefield, W. Va., Dec. 13, at the age of 94. Soon after the Civil War he mined a 14 ft. seam behind his smithy and peddled the coal through the mountains in half-bushel sacks lashed to the back of a horse. He once gave an old mule and a muzzle-loading shotgun for 300 acres, later sold for $20,000 and now worth much more. One of the farms he formerly owned included the present town of Pocahontas.

Rockwell Marietta, 73 years old, prominent banker and coal and coke operator of Fayette and Westmoreland counties, Pennsylvania, and first mayor of Connellsville, died Dec. 12 at his home in Connellsville.

Fred A. Marsh, general purchasing agent of the Link-Belt Co., died in Chicago on Dec. 11 at the age of 52 years. Mr. Marsh was a member of the Link-Belt organization for over 33 years, was one of the organizers of the Purchasing Agents' Association of Chicago, serving as its first president, and had been for some years a director in the National Association of Purchasing Agents.

William Stephan, 68, who had been in the retail coal business in St. Louis since 1867, died of heart failure on a street car in St. Louis, Dec. 8. Born in Germany he came to St. Louis at the age of 19 and 2 years thereafter engaged in the coal business and established one of the most conservative high class coal firms in the city. In past years he represented large tonnages in this market, principally that of the Trenton Coal Co. in the days before coal was brought in carloads to St. Louis, hauling being done from East St. Louis. Until recently his company engaged extensively in the jobbing business. He recently returned from a six months' trip in Germany and was tendered a banquet by the coal trade. His business for the past few years has been in charge of William Stephan, Jr. and O. H. Stephan. In addition he leaves a widow.

The coal industry lost another of its ablest and most prominent executives in the death of **Jesse M. Overton**, president of the Alabama Fuel & Iron Co., and also executive head of several mining operations in Tennessee, who was instantly killed in a collision between a taxicab in which he was riding and a trolley car at Nashville, Tenn., his home, Dec. 16. Mr. Overton was prominently identified with financial and civic institutions in Nashville, where he had long resided, and was widely known among business men of the South. He was a brother-in-law of Judge J. M. Dickinson, Secretary of War in Taft's Cabinet. He was 59 years of age.

Federal Fuel Control Notes

C. A. Magrath, chairman of the Federal Advisory Fuel Committee at Ottawa, Can., was informed today by C. E. Spens, Federal Fuel Distributor, that because of the acute shortage of anthracite in this country, "there is **no immediate prospect, if any at all, of equalizing the deficit existing on Dec. 1 in Canada's allotment,**" amounting to 50 per cent of last season's imports. Mr. Spens' telegram said he was aware of the fact "that since Sept. 11, the date the strike ceased, up to the first of December you have received only approximately 40 per cent of the allotment of domestic sizes," but "there are sections in this country that are suffering grievously despite that production is practically at a maximum and demand is constantly increasing. Rationing and compulsory mixing of steam with domestic sizes have been inaugurated in our most populous districts, which have heretofore been accustomed to using only domestic anthracite. Other substitutes are also being employed. We have no information that similar drastic steps have been adopted in Canada."

In reply to a recent letter addressed by Federal Fuel Distributor C. E. Spens to the Pennsylvania Fuel Commission relative to the necessity for a cleaner preparation of anthracite, Mr. Spens has been informed by Chairman W. D. B. Ainey, of the Commission, that inspectors attached to the office of the Pennsylvania Department of Mines have been instructed by Governor Sproul to make **visual inspections at the mines** with regard to the quality and preparation of anthracite now being produced. This procedure was suggested by the Federal Fuel Distributor as a speedy and effective measure, in view of the familiarity of these inspectors with anthracite and the standards of its quality as shipped. The Federal Fuel Distributor has been informed by the Anthracite Coal Operators' Association, of Philadelphia, that all members of that organization have been urged to conform immediately to the Fuel Distributor's requirements in the preparation of anthracite. This association includes about 85 of the so-called "independent" companies, producing approximately 90 per cent of the "independent" tonnage.

Continuation of the present policy of requiring the mining of a minimum amount of coal at each operation on leased government lands in twelve Western state, taken into account with the production of mines now operating on private lands, promises to result in a total annual coal-mine capacity in that region of 80,000,000 tons within two years, declares H. Foster Bain, Director of the U. S. Bureau of Mines, in a memorandum submitted to the U. S. Coal Commission. As the maximum war-time market for coal from these states was 40,600,000 tons per year, the large production indicated seems certain to bring about the same unhealthy condition, the same loss of capital, and the same distress among miners in the Western coal mining industry that was so marked a feature of 1921 in the coal industry of the East and Middle West. "The general leasing law of Feb. 25, 1920, is mandatory so far as requiring the Secretary of the Interior to divide the land into leasing blocks is concerned, but it apparently permits his discretion as to when and by what general method leases shall be granted," states Director Bain. The states affected by the coal-leasing program are California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington and Wyoming. Coal is produced in Alaska under the provisions of separate legislation.

Association Activities

Winding Gulf Operators' Association

E. E. White, of the E. E. White Coal Co., operating in the Raleigh County field of West Virginia, was re-elected president of the Winding Gulf Operators' Association at the annual meeting of the association held at White Sulphur Springs on Dec. 12. This is the fourteenth consecutive time that Mr. White has been chosen to lead the association. Other officers elected were C. H. Mead, Beckley, vice-president; A. W. Laing, MacAlpin, treasurer; George Wolfe, of Beckley, secretary.

Topics engaging the attention of the meeting were car allotment and distribution and car shortage. J. R. Cary, general superintendent of the Eastern division of the Chesapeake & Ohio; S. M. Adsit, traffic manager of the Virginian, and W. H. League, chief car distributor of the Virginian, were present and discussed the above questions. Other guests were George H. Bailley, of the American Mining Congress, of Washington; W. A. James, secretary of the Beckley Chamber of Commerce; Charles Hodel, editor of the Raleigh Register, and William MacTaggert, agent of the Beaver Land Co.

A luncheon was held at the Greenbrier Hotel at the close of the business meeting.

Trade Literature

Westinghouse Electric & Mfg. Co., of East Pittsburgh, Pa., has issued a 20-page booklet, folder 4506, entitled **"Salient Facts on Silent Gears,"** describing the advantages of the use of Micarta gears and pinions. The booklet is well illustrated and contains gear data which enables the gear user to judge whether they are applicable to his machinery.

Small Reinforced Concrete Coaling Plants. Roberts & Schaefer Co., Chicago, Ill. Bulletin 49. Four-page folder showing views of one-track coaling plant, Simplex skip bucket and loader.

Coming Meetings

American Engineering Council will hold its annual meeting Jan. 11 and 12 at the headquarters of the Federated American Engineering Societies, 24 Jackson Place, Washington, D. C.

Northeast Kentucky Coal Association will hold its annual meeting Jan. 23, 1923, at the Ventura Hotel, Ashland, Ky. Secretary, C. J. Neekamp, Ashland, Ky.

Northern West Virginia Coal Operators' Association will meet Feb. 13 at Fairmont, W. Va. Secretary, G. S. Brackett, Fairmont, W. Va.

American Institute of Mining and Metallurgical Engineers will hold its annual meeting Feb. 19-22, 1923, at the Engineering Societies Building, New York City. Secretary, F. F. Sharpless, New York City.